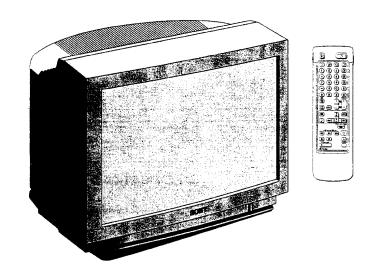
SERVICE MANUAL

AE-2B CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-A2541A	RM-831	ltalian	SCC-G59G-A	KV-A2543E	RM-831	Spanish	SCC-G56G-A
KV-A2541B	RM-831	French	SCC-G57G-A	KV-A2541K	RM-831	OIRT	SCC-G73G-A
KV-A2541D	RM-831	AEP	SCC-G45H-A	KV-A2542U	RM-831	UK	SCC-G55E-A







ITEM MODEL	Television System	Stereo System	Channel Coverage	Calor System
Italian	B/G/H, D/K	GERMAN Stereo	ITALIA VHF:A-H2 (C) UHF: 21-69 PAL B/G/H VHF:E2-E12 UHF:E21-E69 CABLE TV (1):S1-S41 CABLE TV (2):S01-S05. M1-M10, U1-U10 D/K VHF:R01-R12 UHF:R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
French	B/G/H, D/K L, ì	GERMAN Stereo French Nicam	L VHF:F02-F10 UHF:F21-F60 CABLE:B-Q B/G/H VHF:E2-E12 UHF:E21-E69 CABLE TV (1):S1-S41 CABLE TV (2):S01-S05, M1-M10, U1-U10 ITALIA VHF:A-H2 (C) UHF:21-69 I UHF:B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
AEP	B/G/H, D/K	GERMAN Stereo	PAL B/G/H VHF:E2-E12 UHF:E21-E69 CABLE TV (1):S1-S41 CABLE TV (2):S01-S05, M1-M10, U1-U10 ITALIA VHF:A-H2 (C) UHF:21-69 D/K VHF:R01-R12 UHF:R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
Spanish	B/G/H, D/K	GERMAN/NICAM Stereo	PAL B/G VHF:E2-E12 UHF:E21-E69 CABLE TV (1):S1-S41 CABLE TV (2):S01-S05, M1-M10, U1-U10 ITALIA VHF:A-H2 (C) UHF:21-69 D/K VHF:R01-R12 UHF:R21-R69	PAL. SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
OIRT	B/G/H, D/K	GERMAN Stereo	B/G/H VHF:E2-E12 UHF:E21-E69 CABLE TV (1):S1-S41 D/K VHF:R01-R12 UHF:R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
UK	1	NICAM Stereo	UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

MODEL	Italian	French	AEP	Spanish	OIRT	UK
Power Consumption	107W	124W	124Wh	124 W h	124Wh	160W

SPECIFICATIONS

Sound output

[RM-831]

Dimensions

Weight

Remote control system

Power requirements

	3 x 30W Music Power (LRC)
	2 x 4W RMS (S)
	2 x 7.5W Music Power (S)
Power requirements	220 - 240V
Dimensions	Approx. 678x502x512 mm
Weight	Approx. 40kg
Supplied accessories	RM-831 Remote Commander (1)
Other features	IEC designation R6 battery (1) Center Speaker (1), Center Speaker Lead (1) Surround Speakers (2), Surround Speaker Lead (2) NICAM, FASTEXT, GRAPHIC EQUALISER,
	Dimensions Weight Supplied accessories

inputs for S video
 outputs for audio and video signals (selectable)
 Ext Left/Right speaker terminals.
 Center and Surround speaker terminals.
 [FRONT]
 3 Video input - phono jack
 Audio inputs - phono jacks

Super Trinitron

S video input 4-pin DINΩ Headphone jacks : stereo minijack

Picture Tube

Design and specifications are subject to change without notice.

R6 (size AA)

DOLBY PRO LOGIC

1 battery IEC designation

Approx. 65x225x21 mm (w/h/d)

Approx. 157g (Not including batteries)

Infrared control

1.5V dc

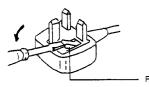
3 x 15W RMS (LRC)

Model name	KV-A2541A	KV-A2541B	KV-A2541D	KV-A2543E	KV-A2541K	KV-A2542U
Pai comb	OFF	OFF	OFF	OFF	OFF	OFF
PIP	OFF	OFF	OFF	OFF	OFF	OFF
RGB Priority	ON	ON	OFF	OFF	OFF	OFF
Graphic Equaliser	ON	ON	ON	ON	ON	ON
Dolby	ON	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON	ON
Just 60 Prog.	OFF	OFF	OFF	OFF	OFF	ON
Dyn. Convergence	OFF	OFF	OFF	OFF	OFF	OFF
Projector	OFF	OFF	OFF	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON
Norm B/G	ON	ON	ON	ON	ON	OFF
Norm I	OFF	ON	OFF	OFF	OFF	ON
Norm D/K	ON	ON	ON	ON	ON	OFF
Norm AUS	OFF	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF	OFF
Bass Offset	OFF	OFF	OFF	OFF	OFF	OFF
Treble Offset	OFF	OFF	OFF	OFF	OFF	OFF
NICAM (L)	OFF	ON	OFF	OFF	OFF	OFF
Language Preset	Italiano	Francais	Deutsch	None	OIRT	English

WARNING (KV-A2542U only)

The flexible mains lead is supplied connected to a **B.S.** 1363 fused plug having a fuse of 5 **AMP** capacity. Should the fuse need to be replaced, use a 5 **AMP FUSE** approved by **ASTA** to **BS** 1362, ie one that carries the mark.

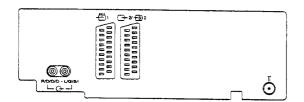
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME. IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET. When an alternative type of plug is used it should be fitted with a 5 AMP FUSE, otherwise the circuit should be protected by a 5 AMP FUSE at the distribution board.

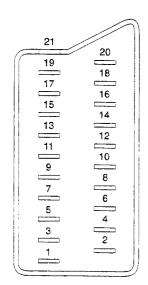


How to replace the fuse. Open the fuse compartment with the screwdriver blade and replace the fuse.

FUSE

21 pin connector (5-1 - 2/- 4)





1	2	4	Signal	Signal level
0)		Audio output B	Standard level: 0.5V rms
\cup			· · ·	Output impedance : Less than 1kohm*
)		,	Standard level : 0.5V rms
)				Output impedance : More than 10kohm*
			· '	Standard level : 0.5V rms
				Output impedance : Less than 1kohm*
0				
0	0	0	. ,	
	\circ			Standard level : 0.5V rms
_				Output impedance : More than 10kohm*
0	•	•	Blue input	0.7 ± 3dB, 75 ohms, positive
			_	High state (9.5 - 12V) : Part mode
	\cap			Low state (0 - 2V) : TV mode
			(AV control)	Input impedance : More than 10k ohms
				Input capacitance : Less than 2nF
0	0	0		
0	0	0	•	
0	•	•		Green signal: 0.7 ± 3dB, 75 ohms, positive
			•	
		0		
0	_	_		0.7 ± 3dB, 75 ohms, positive
-	0	0	` • /	0.3 ± 3dB, 75 ohms, positive
			Blanking input	High state (1 - 3V) Low state (0 - 0.4V)
9	•	•		Input impedance : 75ohms
			Ground(video	
익	\circ	$^{\circ}$	output)	
	$\overline{}$	$\overline{}$	Ground(video	
이	\circ	\circ	input)	
0	0	0	Video output	1V ± 3dB,75ohms,positive sync: 0.3V(-3+10dB
0	\exists			1V ± 3dB,75ohms,positive sync: 0.3V(-3+10dB
-	O			
			Y (S signal)	$1V \pm 3dB$,75ohms,positive sync: 0.3V(-3+10dB
		\overline{a}	Common ground	
기	\cup	\cup	(plug, shield)	
				Audio output B (right) Audio input B (right) Audio input B (right) Audio output A (left) Ground (audio) Audio input A (left) Function select (AV control) Ground (green) Open Green Open Ground (red) Ground (red) Ground (red) Ground (sample) Ground (red) Ground (red) Ground (red) Ground (red) Ground (red) Ground (red) Ground (video output) Ground (video input)

O Connected

Not Connected (open)

* at 20Hz - 20kHz

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	$1V \pm 3dB$ 75 ohm , positive Sync. 0.3V -3/+10 dB
4	C (S signal) input	0.3V ± 3dB 75 ohm , positive Sync.

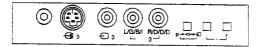


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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP.

WARNING!!

AN ISOLATING TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD, DUE TO A LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED & ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLIMENTS PUBLISHED BY SONY.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION !!

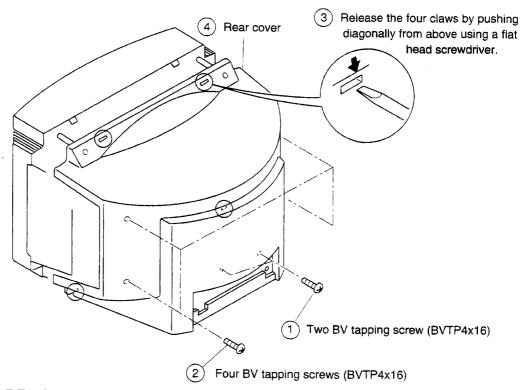
AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE, LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTEMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÈCURITÉ !!

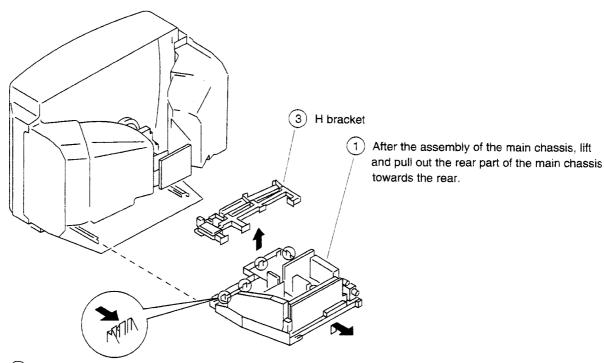
LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE À SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUE DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÈS PAR SONY.

SECTION 2 DISASSEMBLY

2-1. REAR COVER REMOVAL

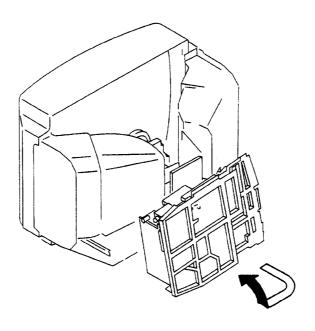


2-2. CHASSIS ASSY REMOVAL

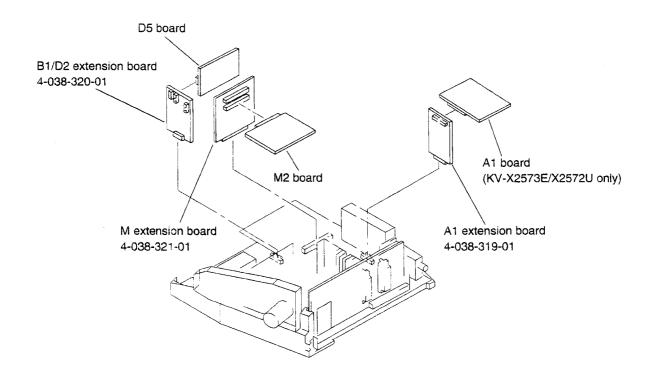


2 Push the four claws of the main chassis in the direction of the arrow and remove the H bracket upwards.

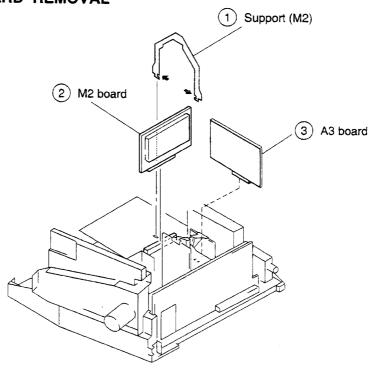
2-3. SERVICE POSITION



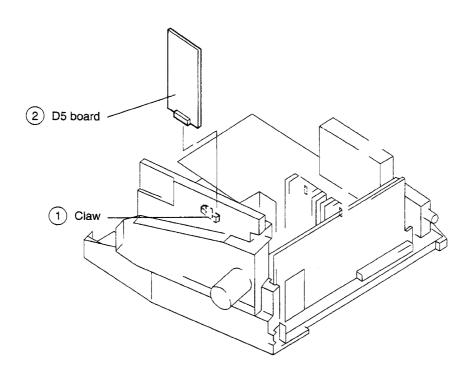
2-4. EXTENSION BOARDS



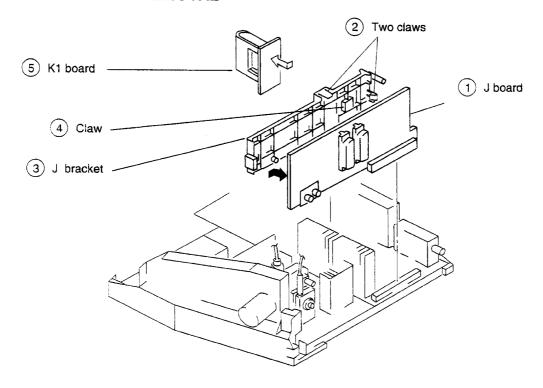
2-5. M2 AND A3 BOARD REMOVAL



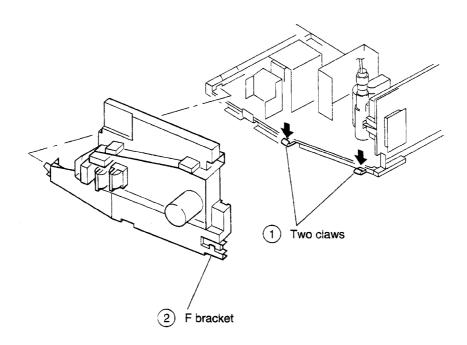
2-6. D5 BOARD REMOVAL



2-7. J AND K1 BOARD REMOVAL

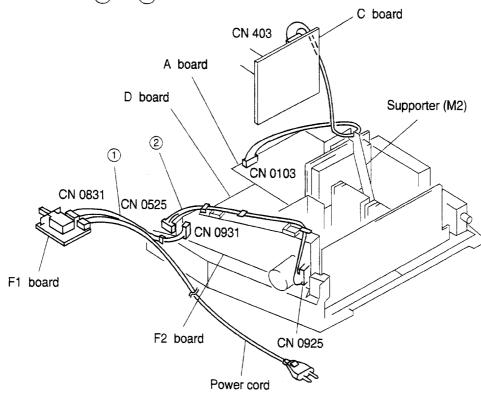


2-8. F BRACKET REMOVAL

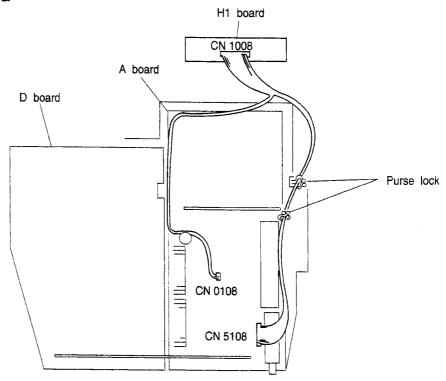


2-9-1. WIRE DRESSING

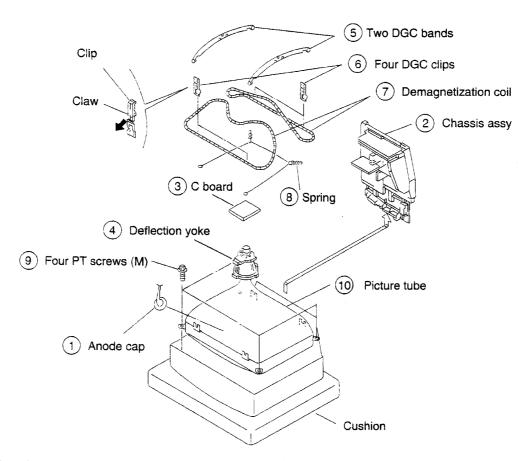
* Keep distance between 1 and 2



2-9-2. WIRE DRESSING



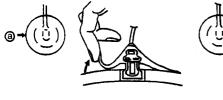
2-10. PICTURE TUBE REMOVAL



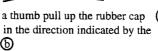
REMOVAL OF ANODE-CAP

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

* REMOVING PROCEDURES.



- (1) Turn up one side of the rubber cap in the direction indicated by the arrow (a)
- Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow (b)



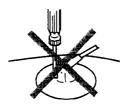
Anode button When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow (c)

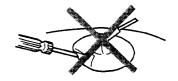
HOW TO HANDLE AN ANODE-CAP

- 1 Don't damage the surface of anode-cap with sharp shaped material!
- 2 Don't press the rubber hardly not to hurt inside of anode-caps!

A metal fitting called as shatter-hook terminal is built into the rubber.

(3) Don't turn the foot of rubber over hardly! The shatter-hook terminal will stick out or damage the rubber.





SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way:

① Contrast 80% (or remote control normal)

Brightness 50%

Preparations:

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

- 1. Input the white signal with the pattern generator. Contrast normal Brightness
- 2. Position neck assy as shown in Fig.3-2.
- 3. Set the pattern generator raster signal to red.
- 4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side. (See Fig.3-1 - 3-3)
- 5. Move the deflection yoke forward and adjust so that entire screen is red. (See Fig.3-1)
- 6. Switch the raster signal to blue, then to green and verify the condition.
- 7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
- 8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig.3-4)

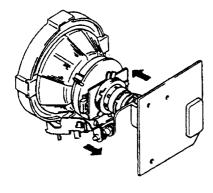
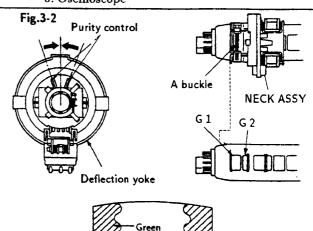


Fig.3-1

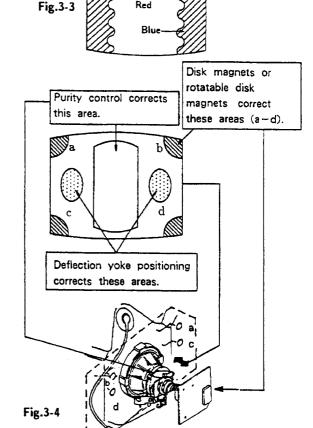
- Carry out the following adjustments in this order :
- 1. Beam landing
- 2. Convergence
- 3. Focus
- 4. White balance

Note: Testing equipment required.

- 1. Color bar/pattern generator
- 2. Degausser
- 3. DC power supply
- 4. Digital multimeter
- 5. Oscilloscope



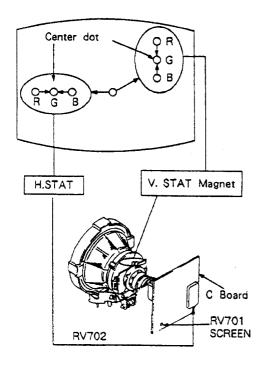
Red



3-2. CONVERGENCE

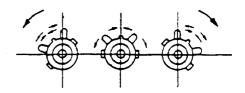
Preparations:

- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.
- (1) Horizontal and vertical static convergence

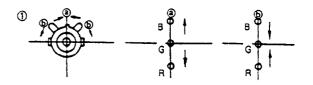


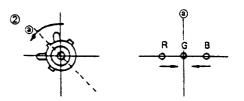
- 1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
- 2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
- 3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below. (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

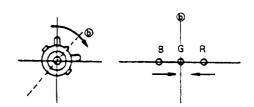
 Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

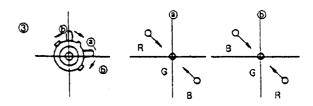


4. If the V.STAT magnet is moved in the direction of the ② and ⑤ arrows, the red, green, and blue points move as shown below.

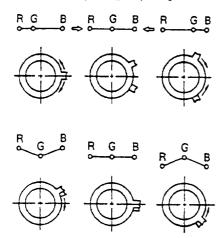






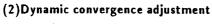


• Operation of BMC (Hexapole) Magnet



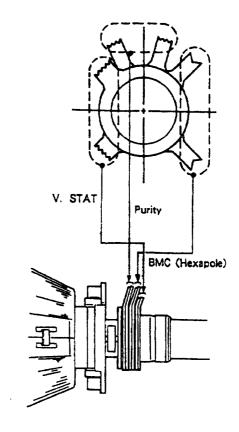
 The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.

Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

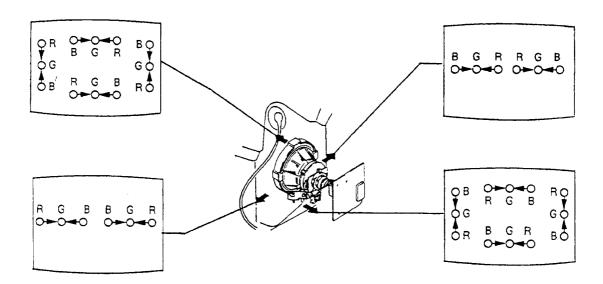


Preparations:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.
- 1. Slightly loosen the deflection yoke screws.

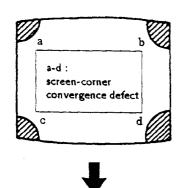


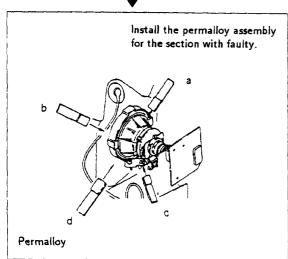
- 2. Remove the deflection yoke spacer.
- 3. Move the deflection yoke as shown in the figure below and optimize the convergence.
- 4. Tighten the deflection yoke screws.
- 5. Install the deflection yoke spacer.



(3) Screen corner convergence

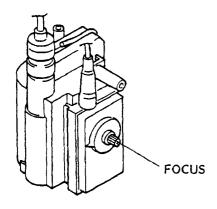
If you cannot adjust corner convergence properly, correct them with permalloy.





3-3. FOCUS

Adjust the focus to optimize the screen.



3-4. WHITE BALANCE

Screen G2 Setting

- 1. Input the dot signal from the pattern generator.
- 2. Set the picture brightness control to its lowest level.
- 3. Apply 180V DC to the R,G, and B cathodes with an external power supply.
- While watching the picture, adjust G 2 control RV 701 (Screen) to the point just before the return lines disappear.

White balance adjustment

- 1. Receive all-white signal.
- Enter into service mode. (Refer to the section 4
 "Electrical Adjustment" to how to enter service
 mode.)
- 3. Select CXA1587S on menu.

09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.

- 4. Set picture to MAX.
- 5. Adjust G-DRIVE B-DRIVE with $\boxed{\bot}$, $\boxed{\bot}$ buttons so that the white balance becomes optimum.
- 6. Press OK button to write the data for each item.
- 7. Set picture to MIN.
- 8. Adjust G-AUTO CUT OFF, B-AUTO CUT OFF, R
 -MANUAL CUT OFF, G-MANUAL CUT OFF and
 B-MANUAL CUT OFF with □, □ buttons so
 that the white balance becomes optimum.
- 9. Press OK button to write the data for each item.

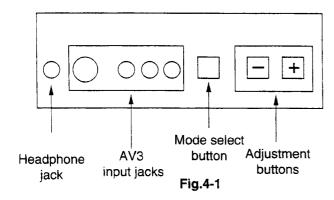
SECTION 4 CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

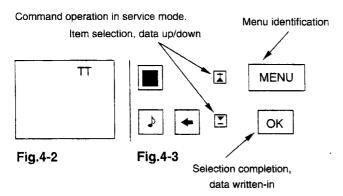
Service adjustment to this model can be performed with the supplied remote commander RM-831

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing any two buttons on the front panel.



"TT" will appear at the upper right corner of the screen.



Press the MENU button on the remote commander to obtain the menu on the screen.

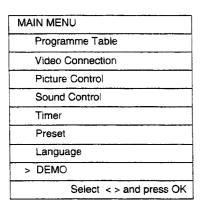


Fig.4-4

- 4. Press the ▲ and buttons on the remote commander and move ≥ to DEMO.
- 5. Press OK button to proceed to the next menu.
- 6. The menu of fig. 4-5 will appear on the screen. Select the DEVICE corresponding to the adjustment item from the table on the next page.

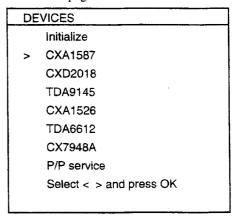


Fig. 4-5

7. If adjustment item is CXA1587, press the button and move > to CXA1587.

CXA1587

Item No	Adjustment item	Data Amount
01	PICTURE	53
02	COLOR	31
03	BRIGHT	31
04	HUE	31
05	SHARPNESS	12
06	RGB PICTURE	7
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
09	SUB BRIGHT	ADJ.
10	SUB HUE	8
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.

- 8. Press OK button to get the next selection menu.
- 9. Press **v** button and move **v** to the adjustment item and press **OK** button.
- 10. Press → and → buttons to change the data in order to comply with each standard.
- 11. Press OK button to write data.
- 12. Turn off the power to quit service mode when adjustments are completed.

Item No	Adjustment item.	Data Amount
01	PICTURE	53
02	COLOR	31
03	BRIGHT	31
04	HUE	31
05	SHARPNESS	12
06	RGB PICTURE	7
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
09	SUB BRIGHT	ADJ.
10	SUB HUE	8
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.
21	GAMMA LEVEL	8
22	DC TRANSFER RATIO	3
23	DYNAMIC PICTURE	2
24	Y FILTER ADJ	ADJ.
25	Y DELAY TIME	15
26	Y DELAY SWITCH 1	0
27	Y DELAY SWITCH 2	1
28	SHARPNESS LIMIT	ON
29	TRAP	OFF
30	H SHIFT	36
31	DA TEST	ON
32	PRE/OVER	12
33	SUB FOCUS	2
34	SUB SHARPNESS	3
35	R MUTE	OFF
36	G MUTE	OFF
37	B MUTE	OFF
38	AGING 1 WHT	OFF
39	AGING 2 BLK	ON
40	AKB OFF	ON
41	INHIBIT RGB	ON
42	FORCED RGB	OFF
43	V/2 V	OFF
44	AXIS	PAL
77	HUE OFF	OFF
45		
45 46	VEXTENSION	OFF
46	V EXTENSION	OFF 1
	V EXTENSION AFC 1 AFC 2	0FF 1 0

CXD2018

Item No	Adjustment item.	Data Amount
01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP. V	12
13	HV COMP. H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAN	OFF
19	INTERLACE	ON
20	H SHIFT	26
21	N/S CORRECTION	ADJ.

Typical On Screen Display based values when receiving PAL Phillips pattern.

TDA6612	ADJ
Stereo-Separation	(31)

Should be adjusted twice, once for 4:3 and once for 16:9 mode.

Y FILTER ADJUSTMENT

- 1. Input a PAL RED pattern.
- 2. Connect an oscilloscope to pin ① of CN0403 (R OUT) on C board.
- 3. Enter into service mode and press 3,8.
- 4. Adjust data by \triangle or ∇ to minimize the chroma element at CN0403 pin $\widehat{1}$.

SUB BRIGHTNESS ADJUSTMENT

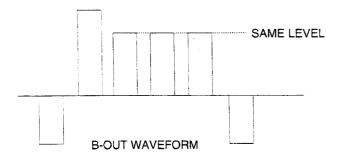
- 1. Input a Phillips pattern.
- 2. Enter into service mode and press 23.
- 3. Adjust data so that 0-IRE of grey scale and CUT-OFF 20-IRE are only slightly visible on screen.

SUB CONTRAST ADJUSTMENT

- 1. Input a video that contains a small 100% area on a Black Background.
- 2. Enter into service mode and press 01 to have PIC max followed by 21.
- 3. Connect oscilloscope to pin ① of CN0403 (R OUT) and adjust data to obtain 2.5Vp-p.

SUB COLOR ADJUSTMENT

- 1. Input a PAL color bar signal.
- 2. Connect an oscilloscope to pin (3) of CN0403 (B OUT) on the C board.
- 3. Enter into service mode and press 22 of CXA1587, 8 SUB COLOR.
- 4. Adjust data so that the right sides of the waveform are set to the same level.



STEREO-SEPARATION ADJUSTMENT

- 1. Input a 1kHz stereo signal to the L-ch and a 400Hz stereo signal to the R-ch.
- 2. Enter into service mode and press 19.
- 3. Adjust data so that sound is not detected in the Right-ch and the Left-ch.

DRIVE AND CUT-OFF

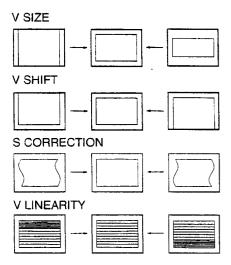
See direct test mode list attached and refer to sub brightness or such for adjustment method.

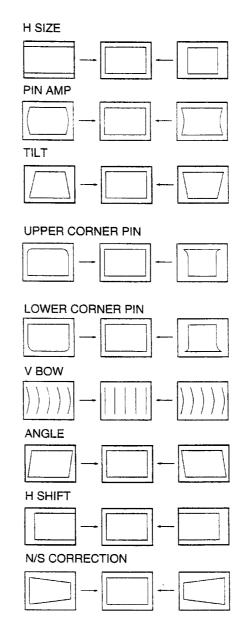
DEFLECTION SYSTEM ADJUSTMENT

- 1. Enter into service mode and select CXD2018.
- 2. Select and adjust each item in order to obtain the optimum image.

CXD2018

Item No	Adjustment item.	Data Amount
01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP. V	12
13	HV COMP. H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAN	OFF
19	NON INTERLACE	ON
20	H SHIFT	26
21	N/S CORRECTION	ADJ.



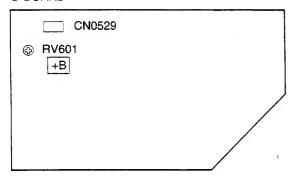


3. Press OK button to write data.

4-2. VOLUME ELECTRICAL ADJUSTMENTS

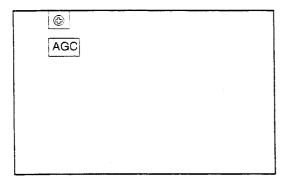
+B (+135V) ADJUSTMENT (RV601)

D BOARD



- 1. Switch on the power to the TV set.
- 2. Connect a digital multi-meter to pin ① of CN0529 on D board.
- 3. Adjust RV601 on D board to $+135V \pm 0.5V$.

AGC ADJUSTMENT (IF BLOCK)



- 1. Receive an off-air signal.
- 2. Adjust the AGC VR so that there is no snow noise or cross-modulation visible on the screen.
- 3. Change the receiving channel and confirm status.

4-3. TEST MODE 2:

Is available by pressing Test button twice, OSD 'TT' appears. The functions described below are available by pressing the two numbers. To release the Test Mode 2, press 0 twice, or switch the TV into Stand-by Mode.

00	switch Test Mode 2 off
01	picture maximum
02	picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Ageing Condition (Volume min., Picture max., Brightness max., Ageing 2 Mode of CXA1587, TDA2595 is locked to CXA1587 via PIN 34 of μ-Con.)
80	Shipping Condition (Analog Values are RESET due to factory setting, Prog 1 is selected, TT Mode is switched off)
09	dummy
10	Tenth entry is deleted
11	Balance
12	Hue
13	Display of Software Version and TV set configeration
14	Adjustment of N/S Correction
15	Read factory setting from NVM Reads Volume, Balance, Treble, Bass, Brightness, Contrast, Hue, Sharpness, Colour values from ROM to the actual used values (Last Power Memory)
16	Save actual used values as RESET values Memorize actual used values Balance, Treble, Bass, Hue, Sharpness at RESET position in NVM.
17	Preset Level for AV Sources
18	dummy
19	Stereo Seperation
20	Tenth entry is deleted
21	Sub Contrast
22	Sub Colour
23	Sub Brightness
24-29	dummy

	-
30	Tenth entry is deleted
31	Green Drive
32	Blue Drive
33	Green Cut Off (Auto Cut Off)
34	Blue Cut Off (Auto Cut Off)
35	Red Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
36	Green Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
37	Blue Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
38	Y-Filter adjustment (Trap is switched off and TDA9145 is switched in forced NTSC Mode)
39	dummy
40	Tenth entry is deleted
41	Default setting of CXA1587 (Only available in Prog 99)
42	Default setting of CXA2018 (Only available in Prog 99)
43	Default setting of CXA1526 (Only available in Prog 99)
44	(all Port High) Not yet
45	(all Port High) Not yet
46	IR Channel Pressetting Mode The channel pressetting can be done by a Special IR Transmitter
47-48	dummy
49	Erase the NVM Testbyte (this byte detects already stored NVM's) After selecting this function, switch TV Off and On -> the NVM will be preset by μ-Controller. (Not the channel data)

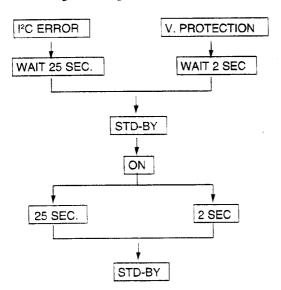
Note: For No 35, 36, 37 and 38 special pressing (AKB, forced Color Mode, Trap) is selected. After selecting a new Test Mode Number, the AKB is switched ON, the Trap is switched ON and TDA9145 is switched to Auto Search Mode.

In Test Mode 2 the Menu display is switchable by the Speaker-Off button.

4-4. ERROR MESSAGE

Self diagnostic system operates as follows.

 When the microprocessor is unable to receive an acknowledgement back from the device, the LED starts flashing according to the table below.



In the case of more than one error in parallel, the blinking error shows max priority according to the error number (e.g. error 2 and error 5 appear together, then LED,s show error 2).

ERROR TABLE

IC TYPE	FUNCTION	
II C BUS	SDA low	
X24C16	EPROM	
TDA9145	Colour decoder	
CXA1587	RGB/Jungle	
TDA6612	Sound processor	
CXD2018	V deflection	
CXA1545	AV switch	
SDA5248	Text	
	V protection	
	TDA9145 CXA1587 TDA6612 CXD2018 CXA1545	

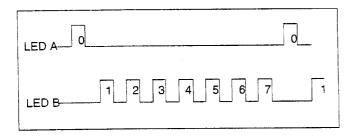
Stand By LED blinking

No 1K return

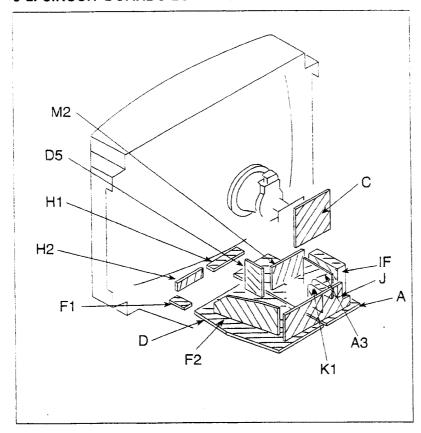
4-5. ERROR I²C BUS DIAGNOSTIC SYSTEM FOR AE2-B CHASSIS.

For all IC's used in the AE 2-B chassis which are necessary to obtain picture and sound there is an inbuilt I²C Bus diagnostic system.

In the case of no acknowledge bit, LED A and LED B start blinking as shown.



5-2. CIRCUIT BOARDS LOCATION



5-3, SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note

- All capacitors are in μ F unless otherwise noted.
 ρF: μ μ F 50WV or less are not indicated except for electrolytic.
- indication of resistance, which dose not have one for rating electrical power, is as follows.

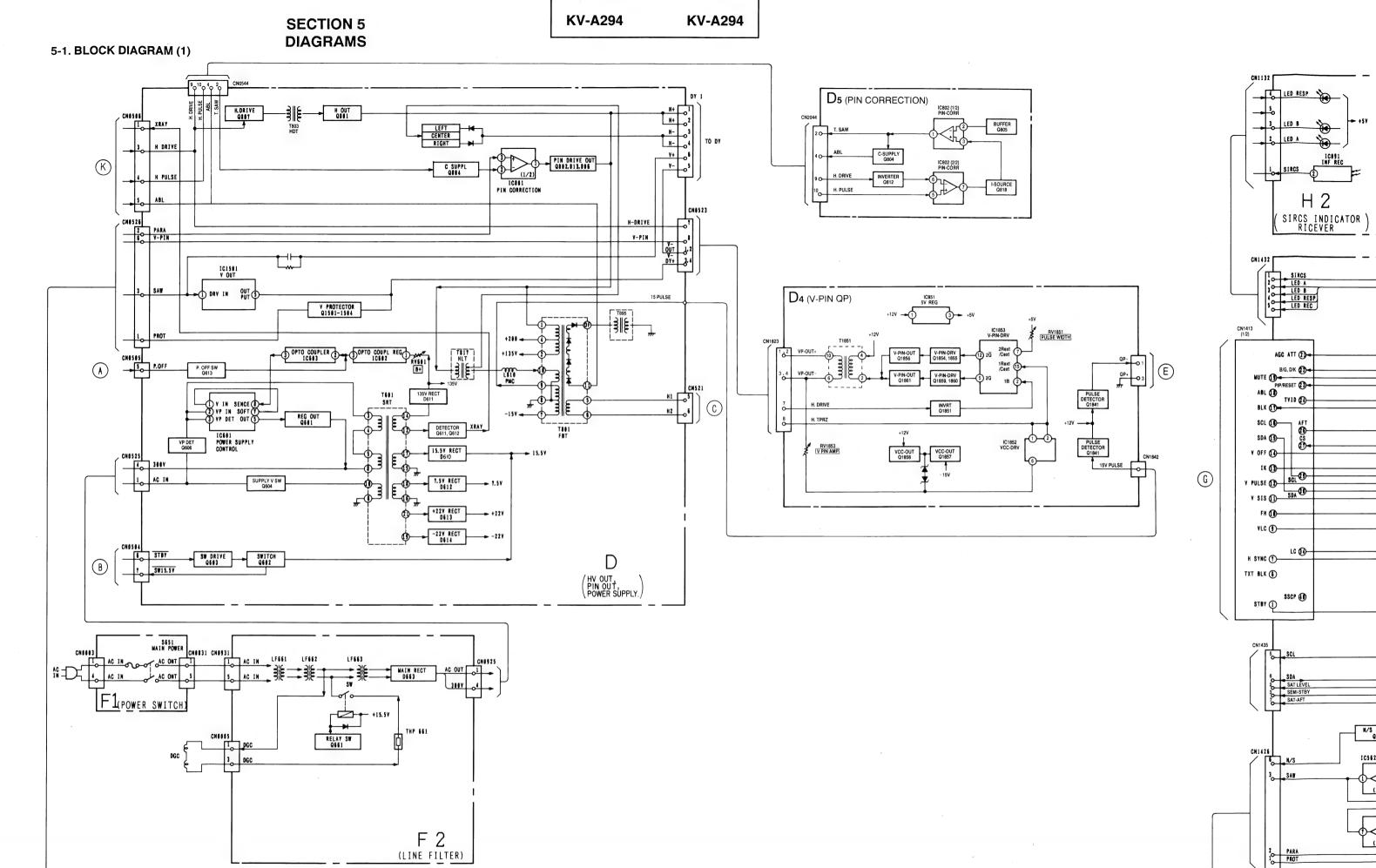
Pitch: 5mm Rating electrical power: 1/4W

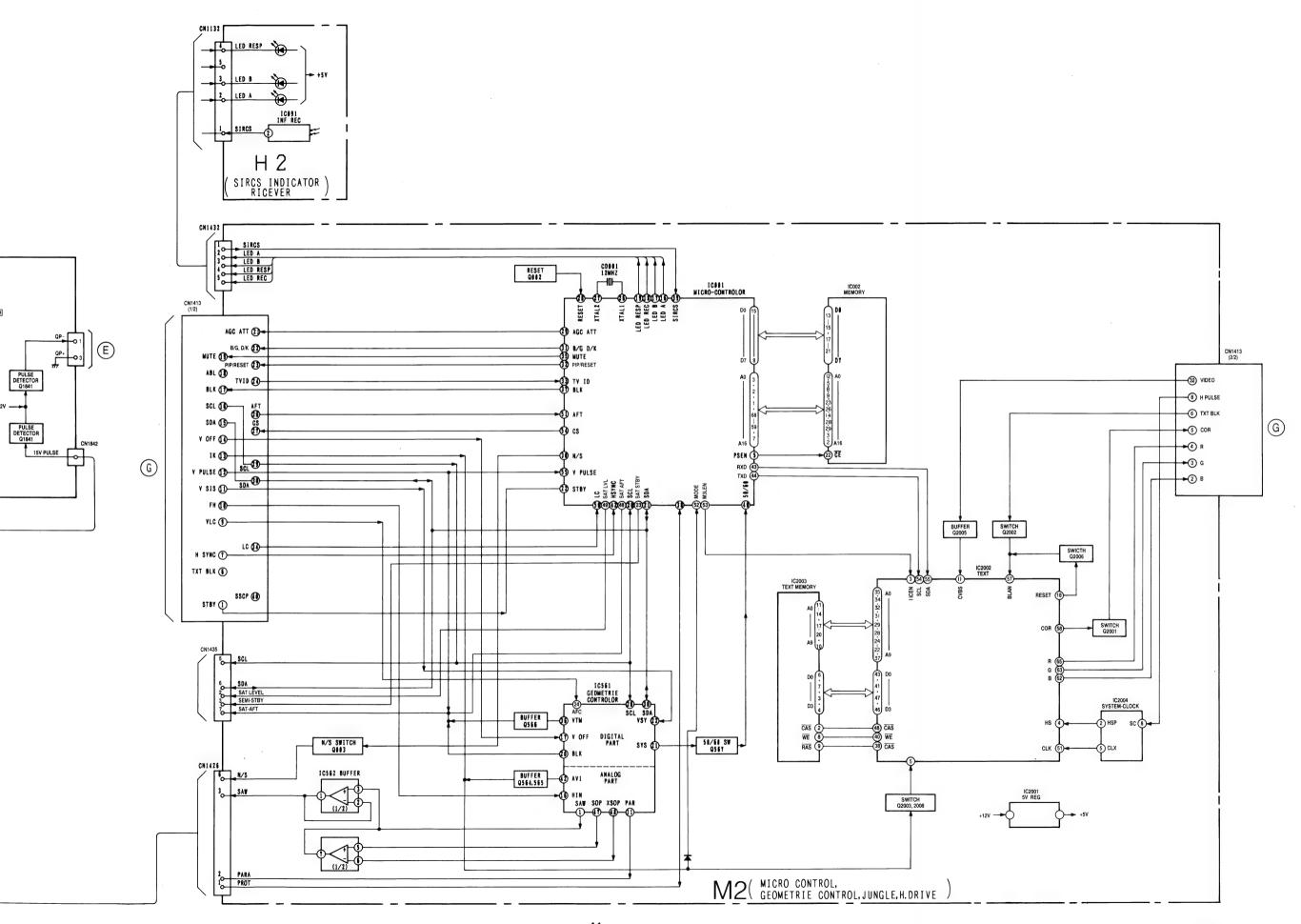
- · Chip resistor is in 1/10W.
- All resistors are in ohms. $k \Omega = 1000 \Omega$, $M \Omega = 1000 K \Omega$
- · monflammable resistor.
- · fusible resistor.
- Δ : internal component.
- _____: panel designation or adjustment for repair.
- Ail variable and adjustable resistors have charactristic curve 8, unless otherwise noted.
- All voltages are in V.
- Readings are taken with a $10M\,\Omega$ digital multimeter.
- · Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- : B + bus.
- = = : B bus.
- 資配合: signal path.(RF)
- · ___ : earth ground
- ; earth chassis

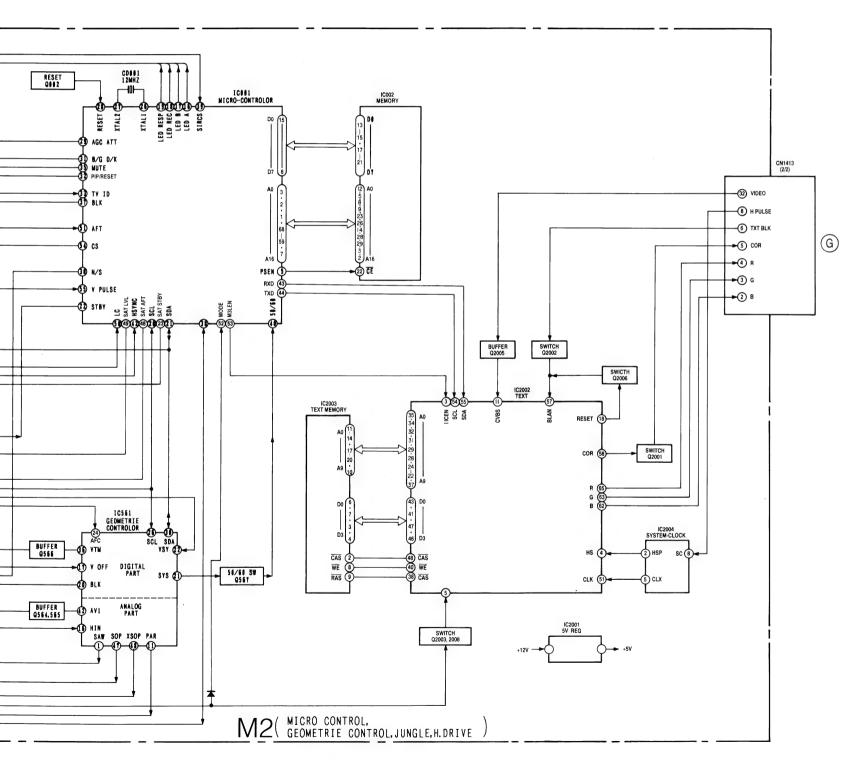
Reference information RESISTOR RN : METAL FILM RC : SOLID **FPRD** : NONFLAMMABLE CARBON FUSE : NONFLAMMABLE FUSIBLE : NONFLAMMABLE METAL OX RS : NONFLAMMABLE CEMENT RW : NONFLAMMABLE WIREWOUN : ADJUSTMENT RESISTOR COIL LF-8L : MICRO INDUCTOR CAPACITOR TΑ : TANTALUM PS : STYROL : POLYPROPYLENE PP : MYLAR MPS : METALIZED POLYESTER MPP : METALIZED POLYPROPYLENE ALB. : BIPOLAR : HIGH TEMPERATURE ALT ALR : HIGH RIPPLE

Note: The components identified by shading a A are critical for safety. Replace of part number specified.

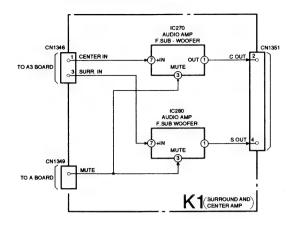
Note: Les composants identifiés par une par une marque A sont d'une im critique pour la sécurité. Ne les na que par des pièces de numéro s

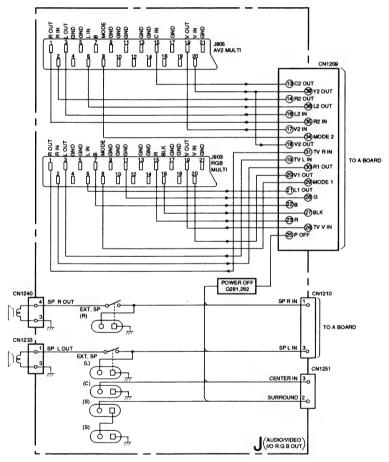


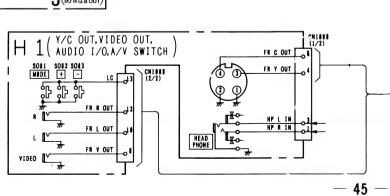


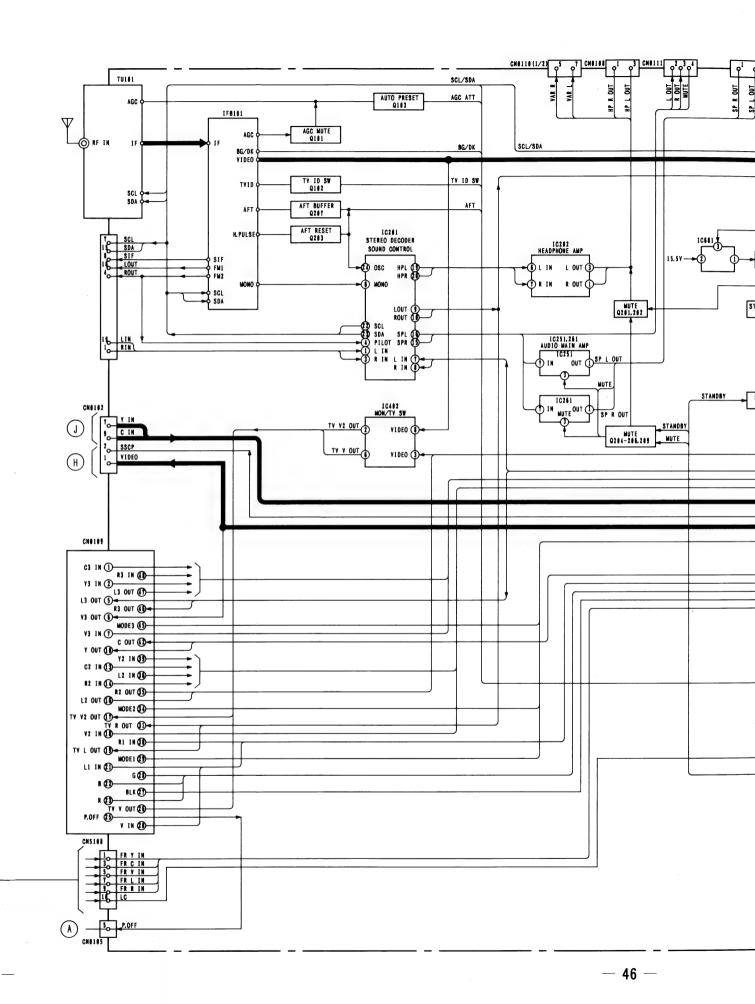


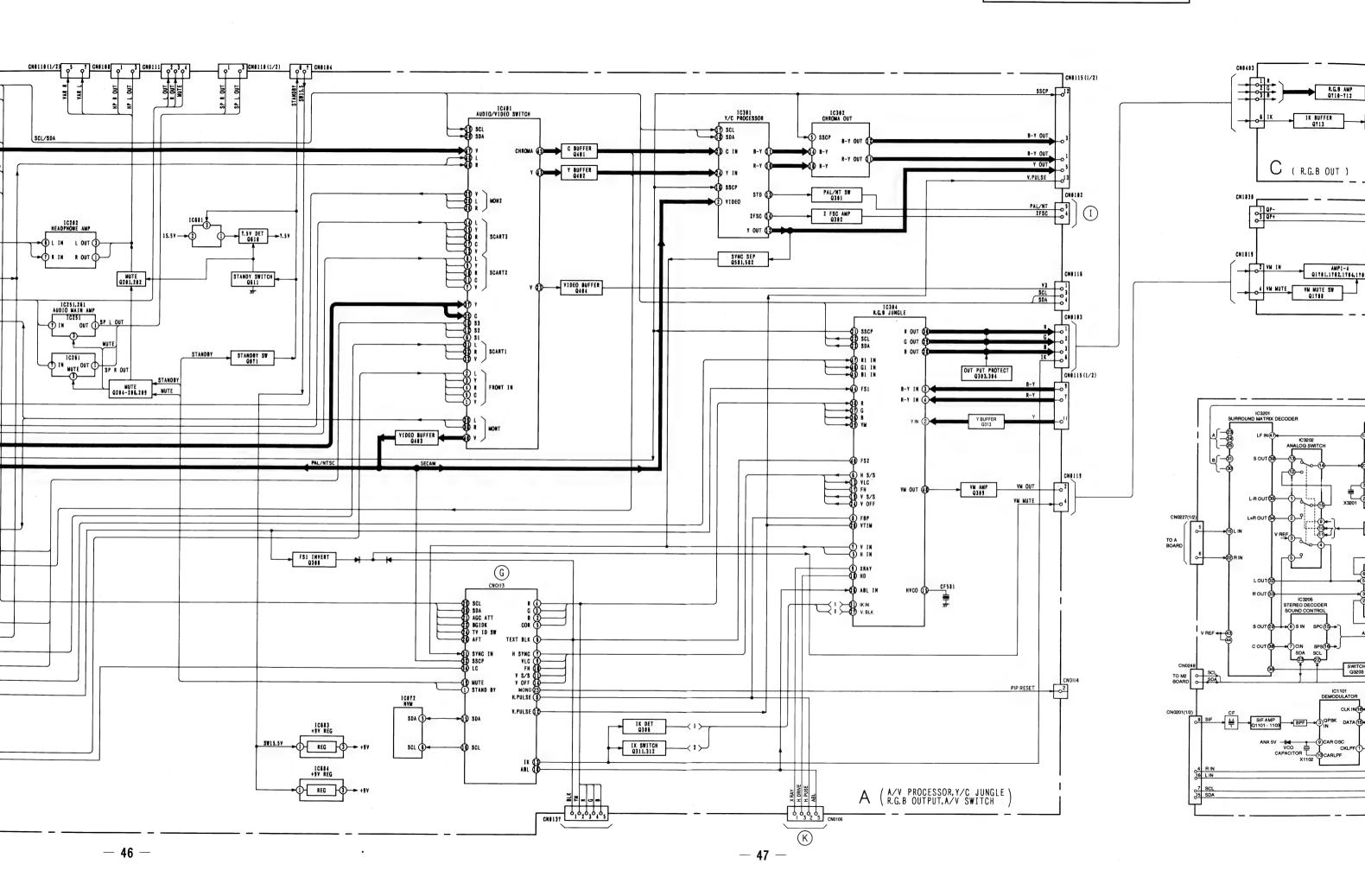
BLOCK DIAGRAM (2)

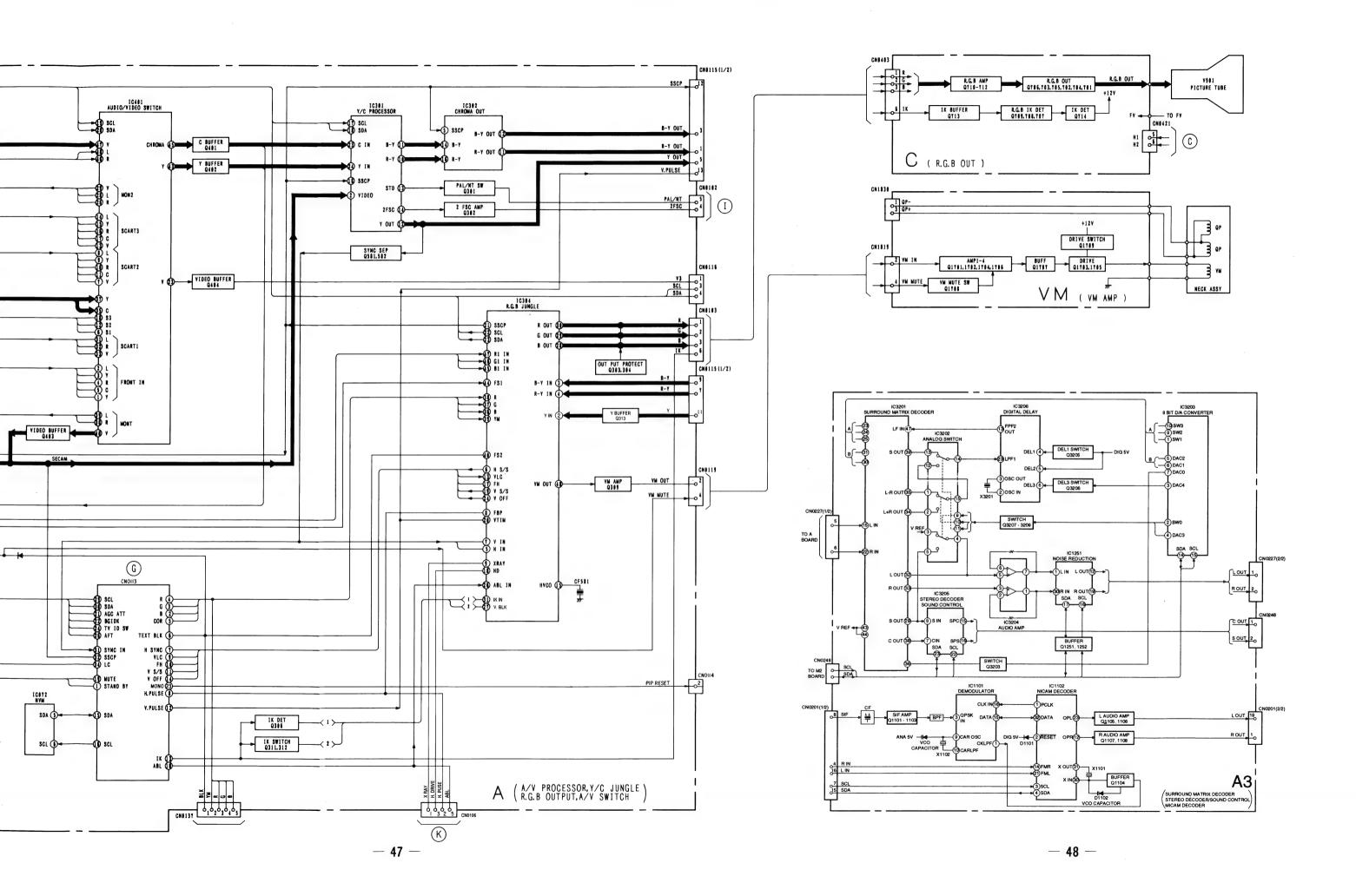




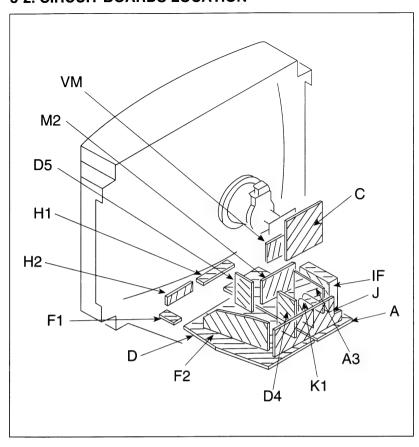








5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

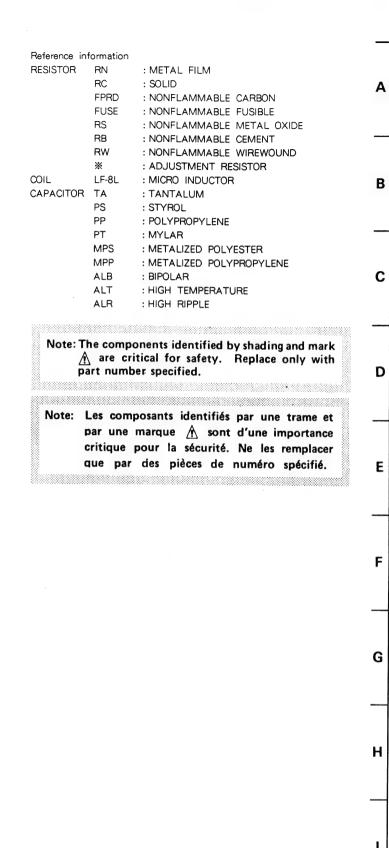
Note :

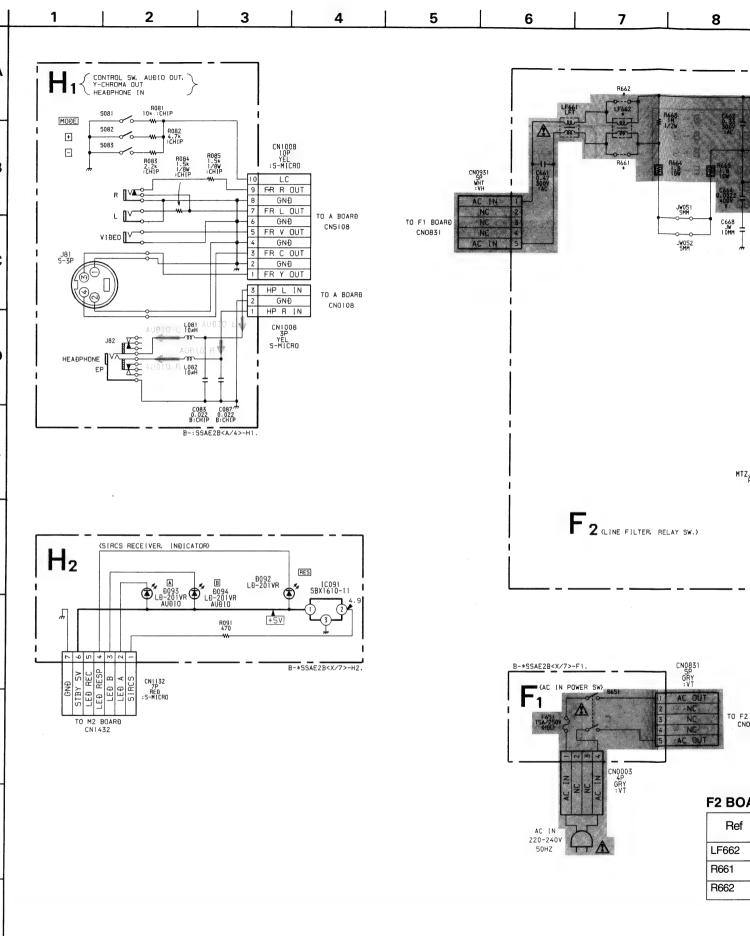
- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytic.
- Indication of resistance, which dose not have one for rating electrical power, is as follows.

Pitch : 5mm

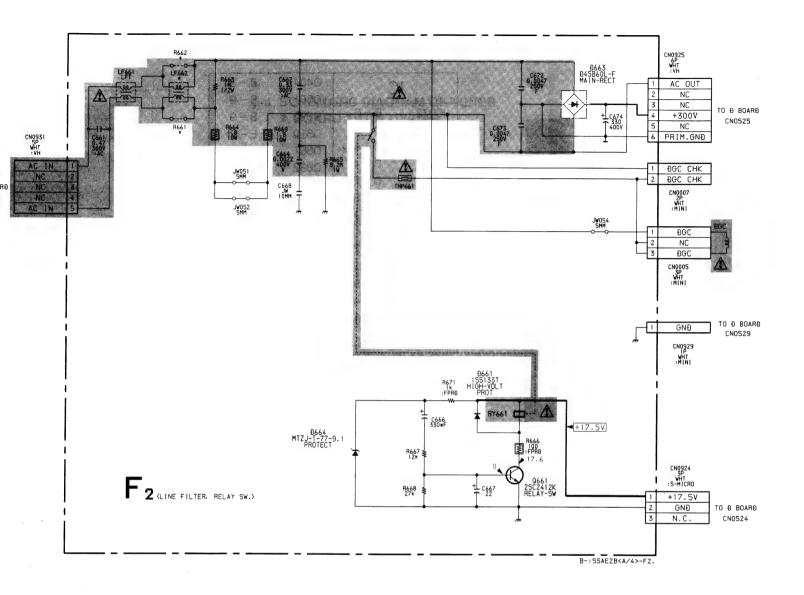
Rating electrical power: 1/4W

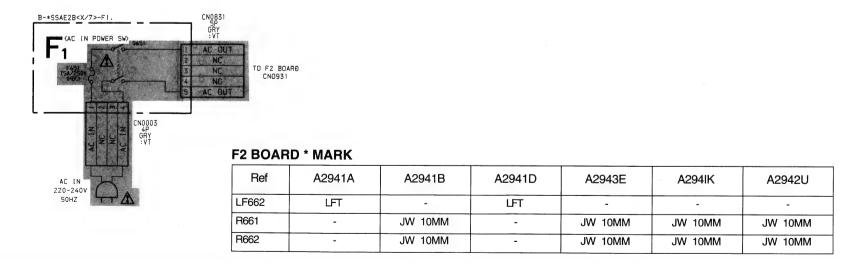
- Chip resistor is in 1/10W.
- All resistors are in ohms. $k \Omega = 1000 \Omega$, $M \Omega = 1000 K \Omega$
- Two : nonflammable resistor.
- tusible resistor.
- Δ : internal component.
- _____: panel designation or adjustment for repair.
- All variable and adjustable resistors have charactristic curve B, unless otherwise noted.
- · All voltages are in V.
- Readings are taken with a $10M\,\Omega$ digital multimeter.
- · Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- : B + bus.
- = : B bus.
- signal path.(RF)
- · ___ : earth ground
- · : earth chassis



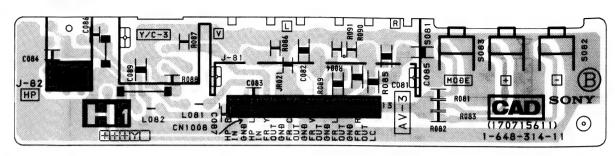




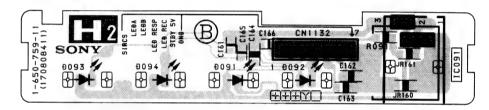




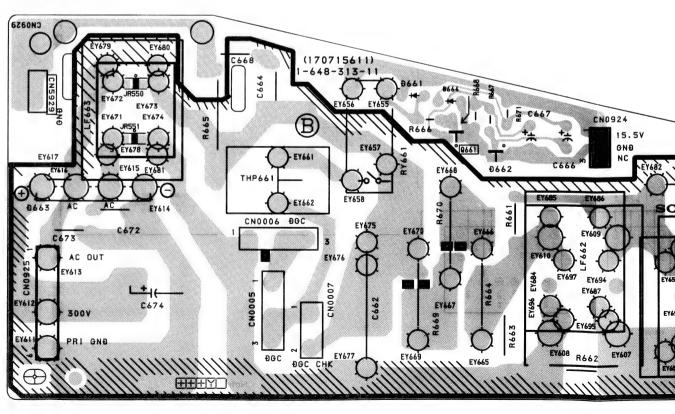
- H1 BOARD -

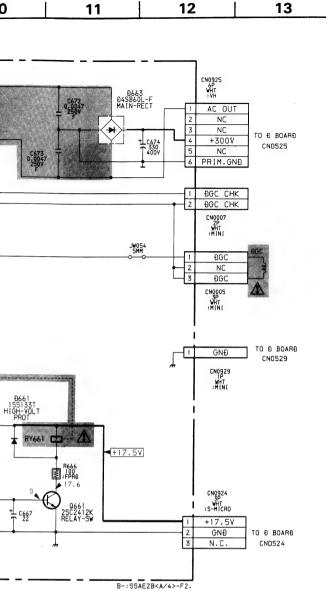


- **H2 BOARD** -



- F2 BOARD -

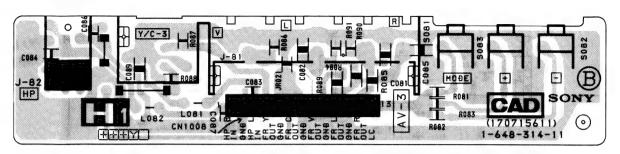




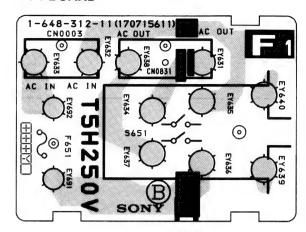
IB	A2941D	A2943E	A294IK	A2942U
	LFT	-	-	-
MM	-	JW 10MM	JW 10MM	JW 10MM
MM	-	JW 10MM	JW 10MM	JW 10MM



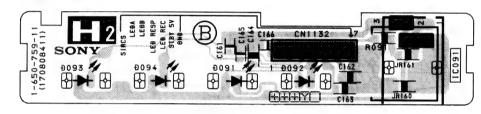
- H1 BOARD -



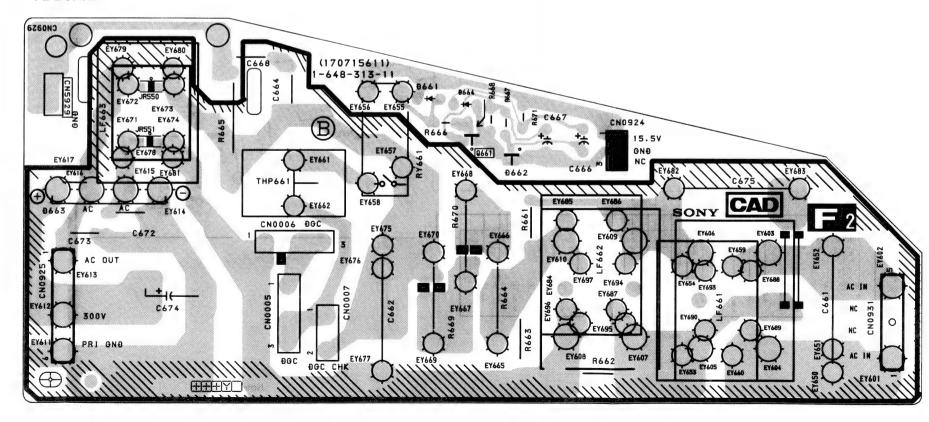
- F1 BOARD -

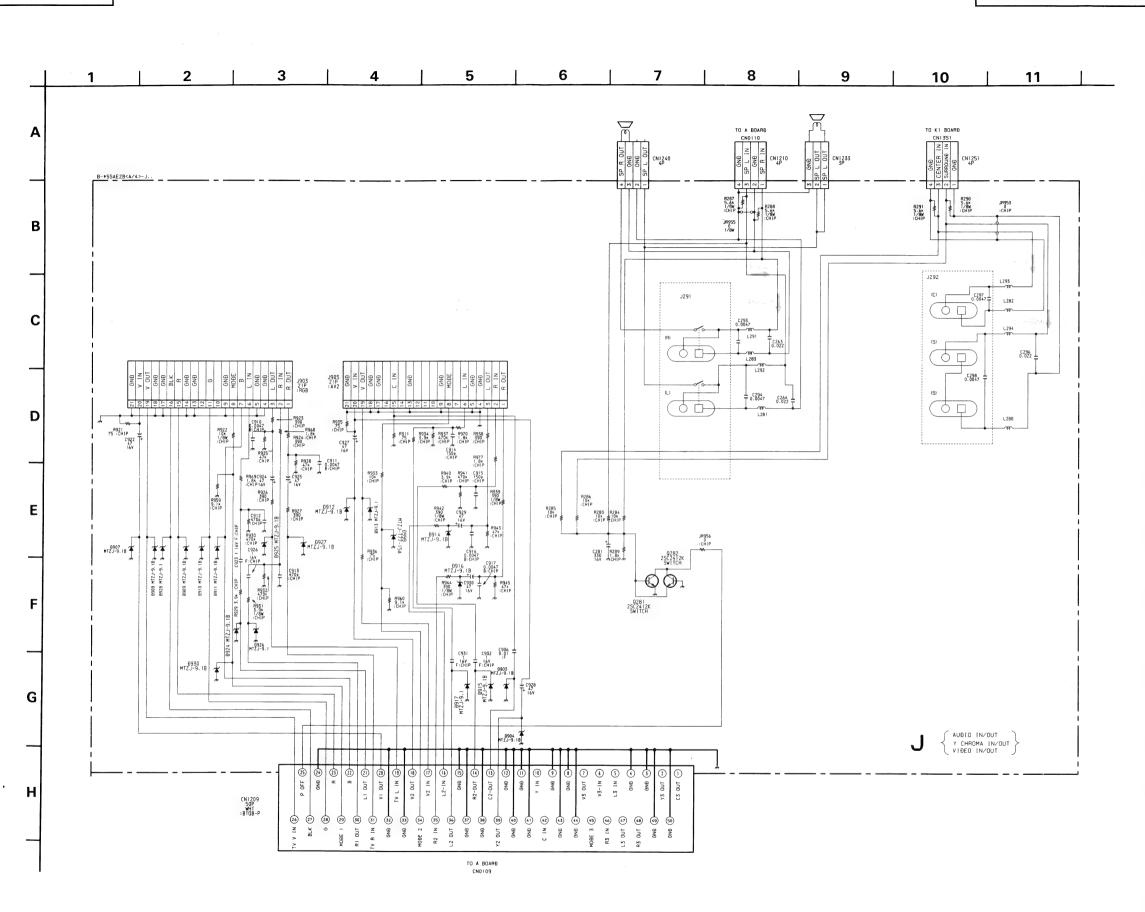


- H2 BOARD -



- F2 BOARD -

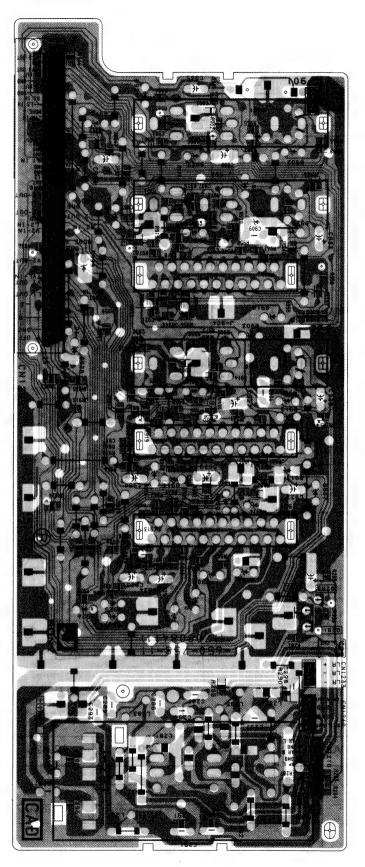




AUDIO IN/OUT
Y - CHROMA IN/OUT
VIDEO IN/OUT

TUNER AUDIO CONTROL AV SW, R.G.B. JUNGLE, Y

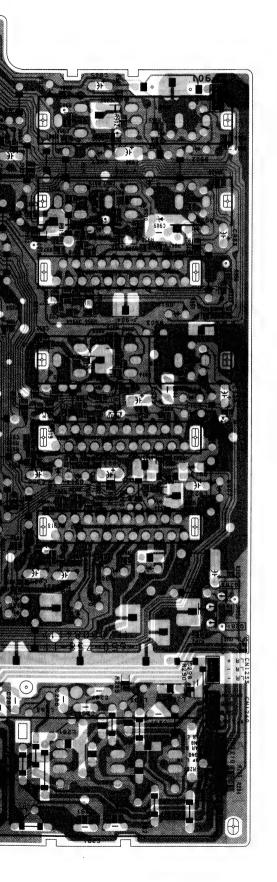
- J BOARD -



- · : Pattern from the side which enables seeing.
- Pattern of the rear side.

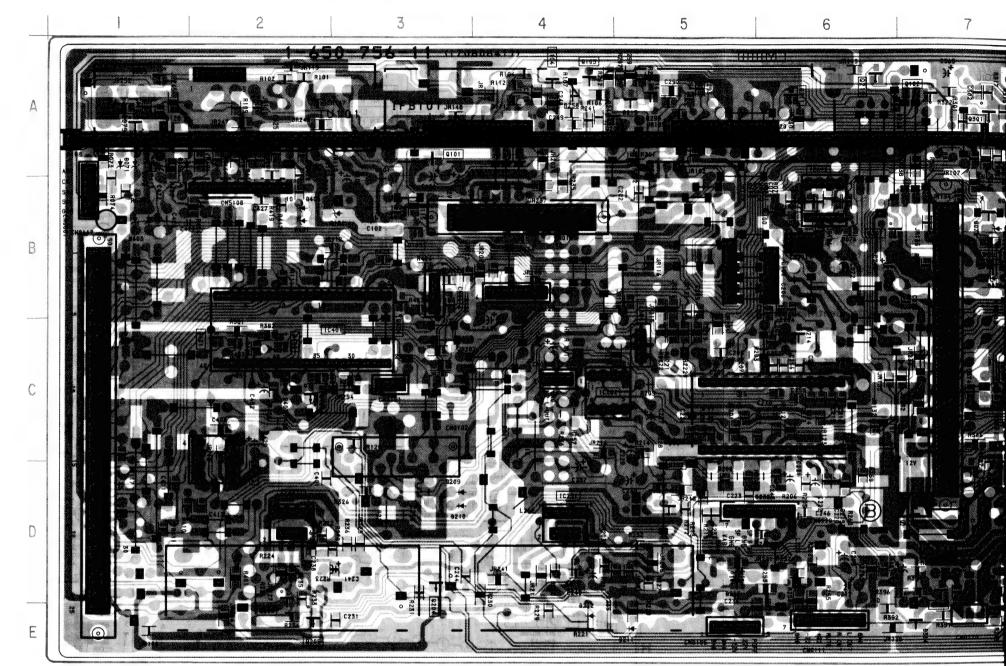
O IN/OUT HROMA IN/OUT O IN/OUT

TUNER AUDIO CONTROL, AUDIO AMP AV SW, R.G.B. JUNGLE, Y/C PROCESSOR

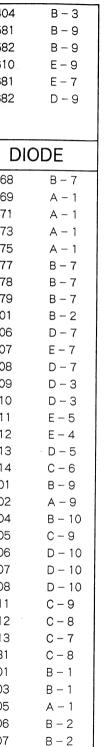


IC C	2404 B – 3
10070	⊇581 B − 9
10001 0 0	0582 B−9
10000	2610 E-9
10051 5 4	2681 E - 7
IC261 D-2	2682 D - 9
IC301 A - 8	
IC302 A - 10	DIODE
IC304 C - 10	DIODE
i I	0068 B – 7
; I	0069 A - 1
	DO71 A - 1
1	0073 A - 1
	0075 A - 1
	0077 B – 7
I RANKIK I ARI	0078 B - 7 0079 B - 7
	0101 B - 2
	0206 D - 7
	0207 E - 7
	D208 D-7
Q201 D-5 D)209 D-3
Q202 D-5 C	D – 3
Q203 A-4 C	0211 E-5
1	0212 E – 4
	0213 D - 5
	0214 C-6
	9301 B - 9 9302 A - 9
	9302 A - 9 9304 B - 10
	9305 C - 9
	306 D – 10
1	307 D - 10
Q304 D - 10 D	308 D - 10
	311 C-9
	312 C-8
	313 C-7
	381 C – 8
	401 B – 1
j	403 B – 1
1	405 A - 1 406 B - 2
	406 B – 2 407 B – 2
	571 B – 9
	681 E – 8
	683 D-9

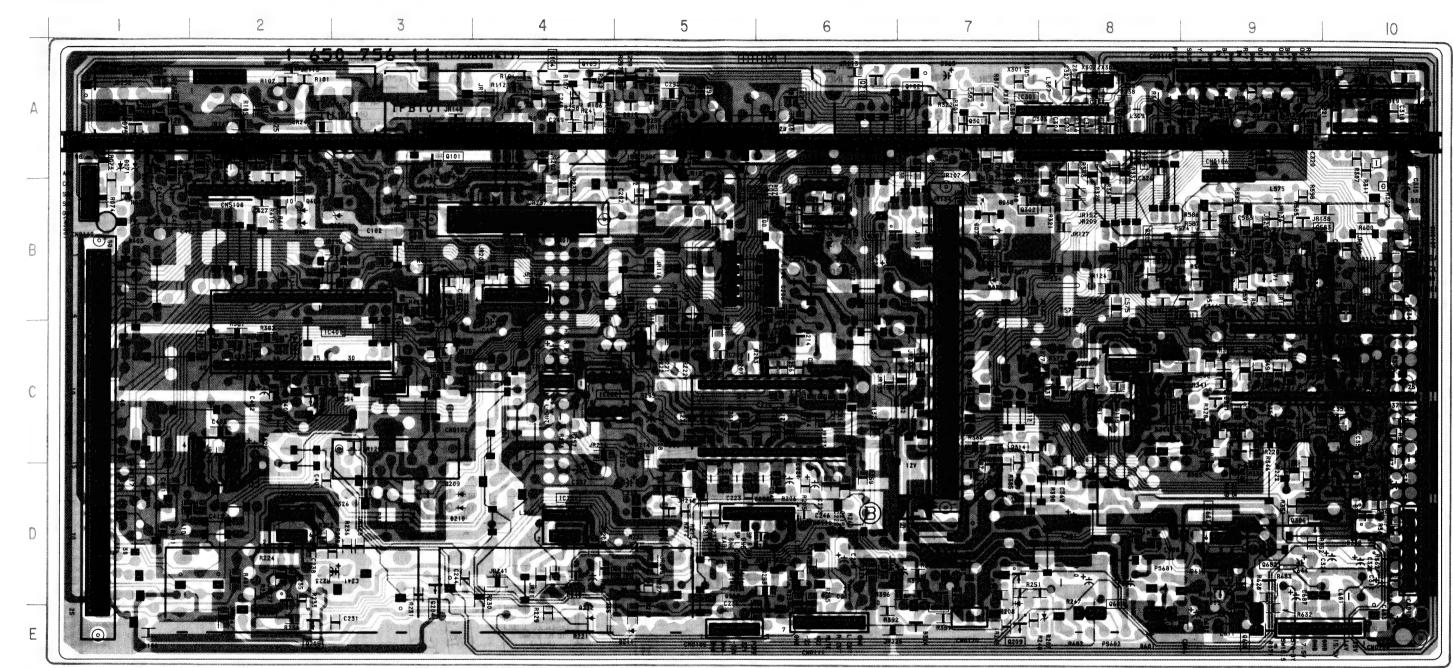
- A BOARD -



- A BOARD -

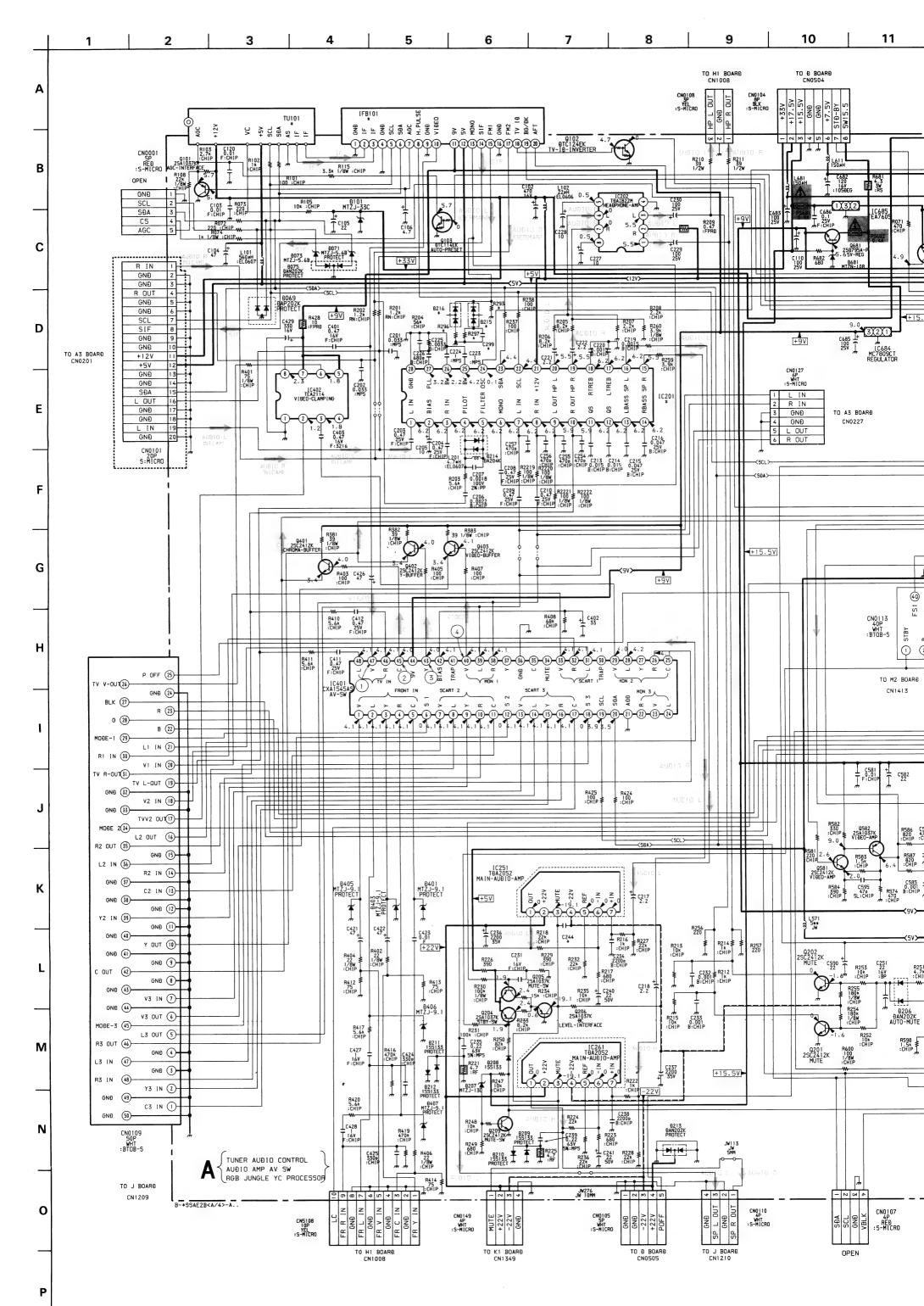


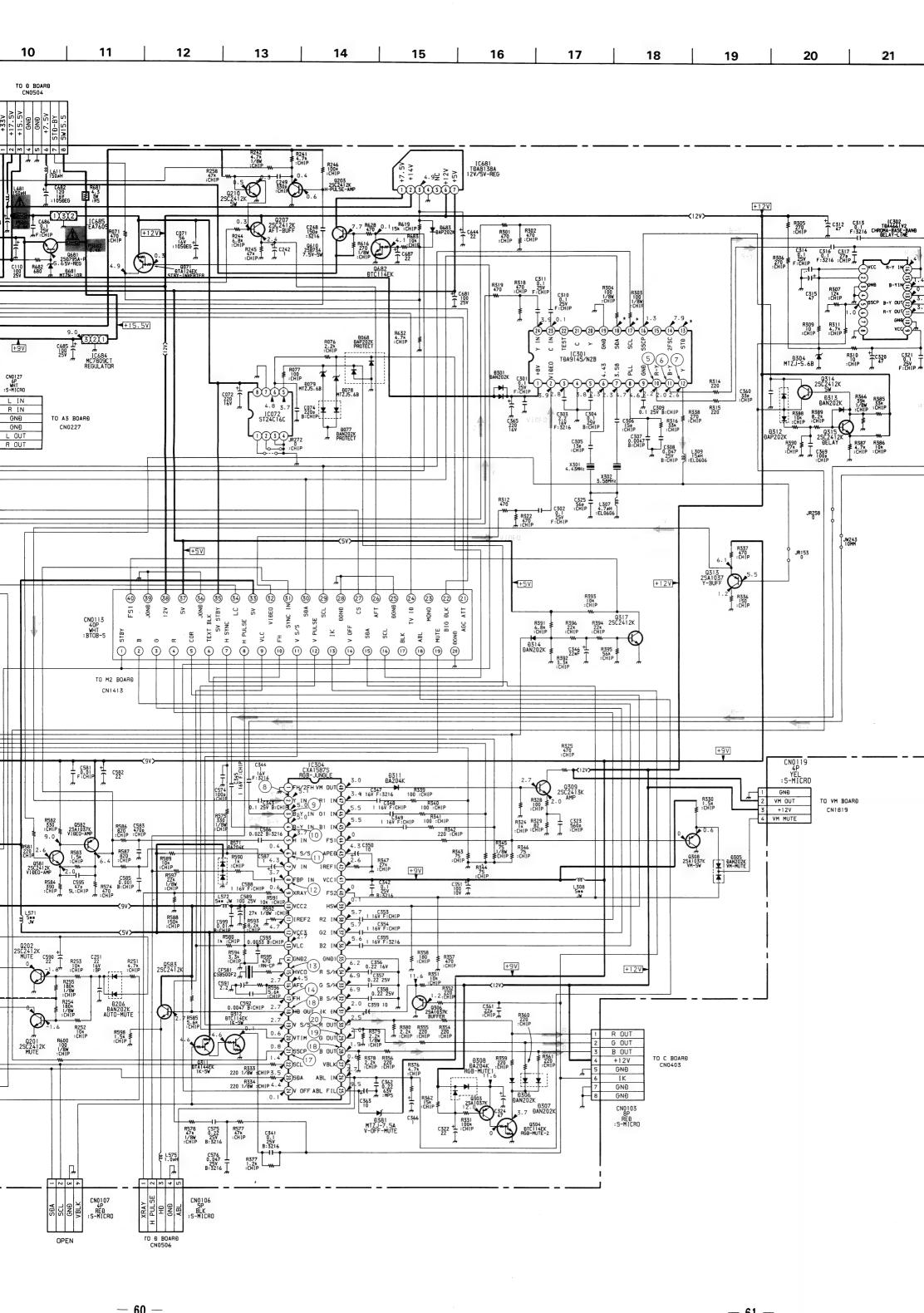
B - 9 E - 8 D - 9

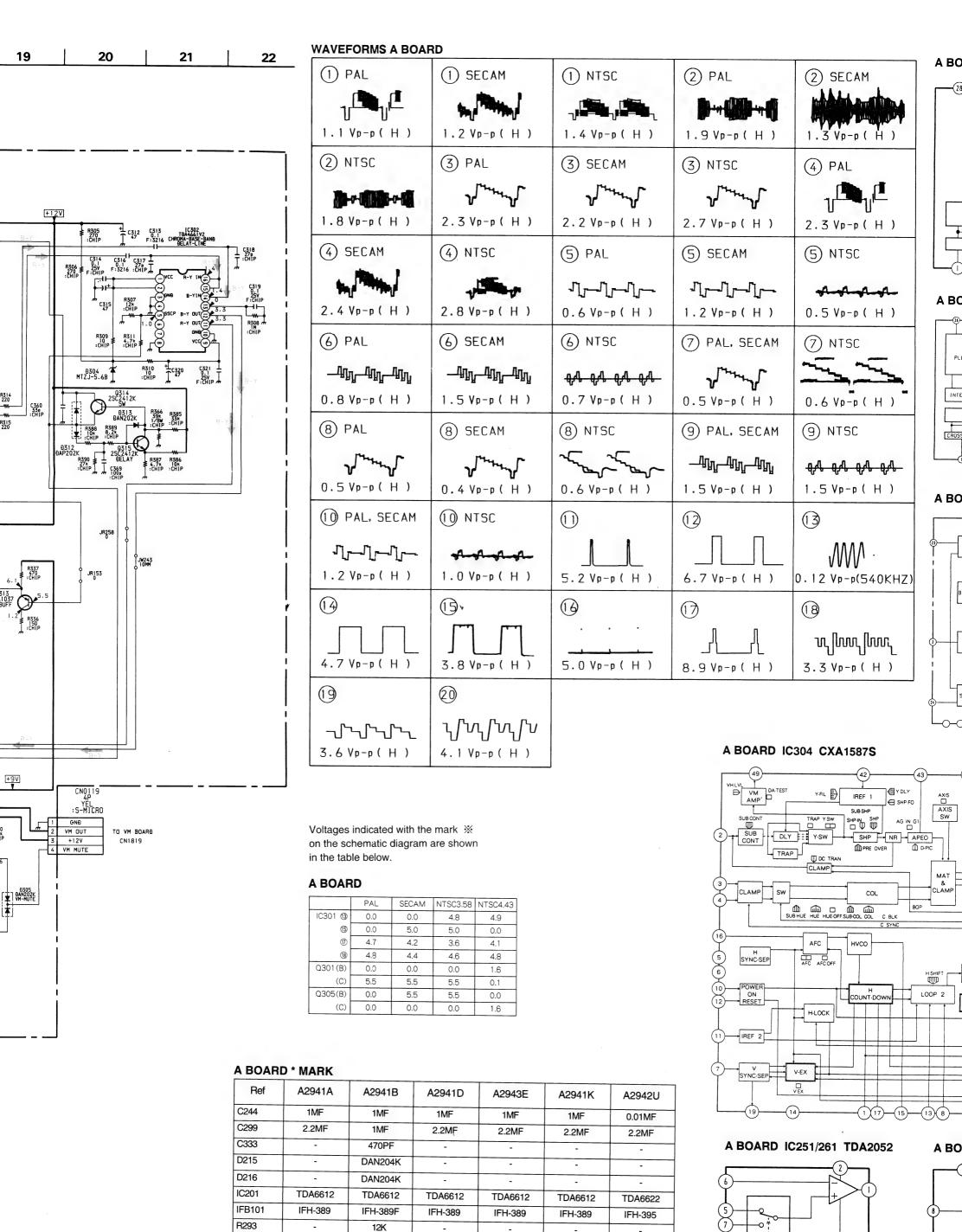


Note:

- Seeing.
- Pattern of the rear side.







R296

R297

R326

TU101

UV916H

330

120

0

UV916H

-

-

-

UV916H

-

UV916H

_

UV916H

-

U944C

MUTE/

ATTESA

RMS A BOARD (1) NTSC (1) SECAM -p(H) 1.2 Vp-p(H) 1.4 Vp-p (H) (3) PAL (3) SECAM SC Mymmy Mymmy -p(H) 2.3 Vp-p (H)2.2 Vp-p (H) (5) PAL CAM (4) NTSC **┚**┃┡━┛<u>┃</u>┡━ 2.8 Vp-p(H) p(H) 0.6 Vp-p (H)(6) SECAM (6) NTSC -ՄՄ-ՄՄ **─₩₩₩₩₩** 149 149 149 149 1.5 Vp-p(H) 0.7 Vp-p (H)э-р(Н) (8) NTSC (8) SECAM o-p (H) 0.6 Vp-p (H)0.4 Vp-p (H)(10) NTSC (1)L, SECAM ╼┚┋┖╼╌┋ -A-A-A-A p-p(H) 1.0 Vp-p(H) 5.2 Vp-p(H) (13) (13) p-p(H) 3.8 Vp-p(H) 5.0 Vp-p (H)

20)

o-р(Н)

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PAL

0.0

0.0

4.7

4.8

5.5

0.0

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ematic diagram are shown

0.0

5.0

4.2

4.4

0.0

5.5 0.0

SECAM NTSC3.58 NTSC4.43

3.6

4.6

4.9

0.0

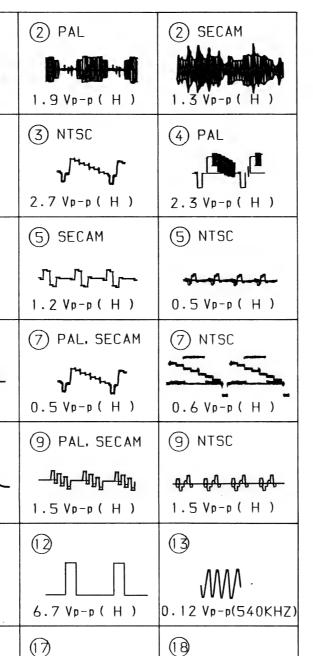
4.1

4.8

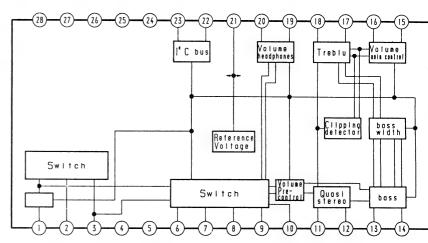
1.6

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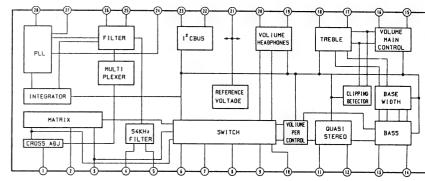
4.1 Vp-p(H)



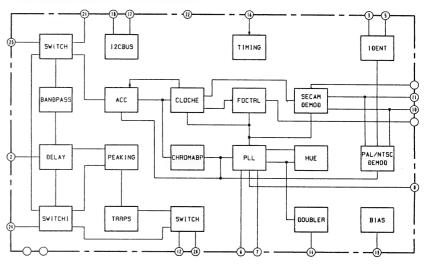
A BOARD IC201 TDA6622 (UK Model only)

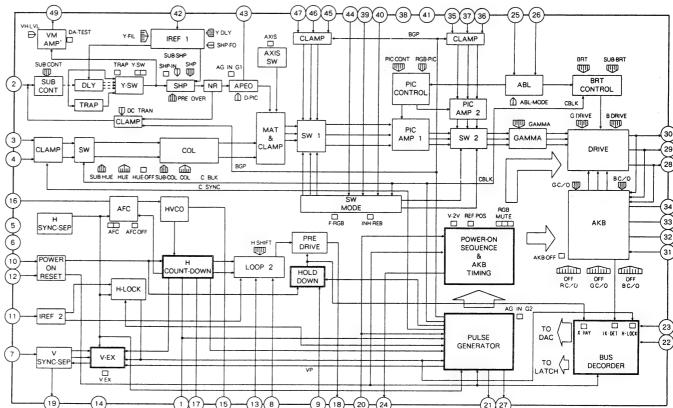


A BOARD IC201 TDA6612



A BOARD IC301 TDA9145/N2B

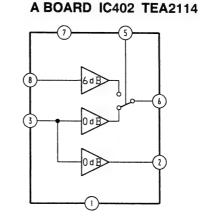


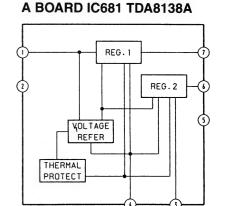


A2941B	A2941D	A2943E	A2941K	A2942U
1MF	1MF	1MF	1MF	0.01MF
1MF	2.2MĘ	2.2MF	2.2MF	2.2MF
470PF	-	-	-	-
DAN204K	-	-	-	-
DAN204K	-	-	-	-
TDA6612	TDA6612	TDA6612	TDA6612	TDA6622
IFH-389F	IFH-389	IFH-389	IFH-389	IFH-395
12K	-	-	-	-
330	-	-	-	-
120	-	-	-	-
0	-	-	-	-
UV916H	UV916H	UV916H	UV916H	U944C

MUTE/ ATTESA

A BOARD IC251/261 TDA2052



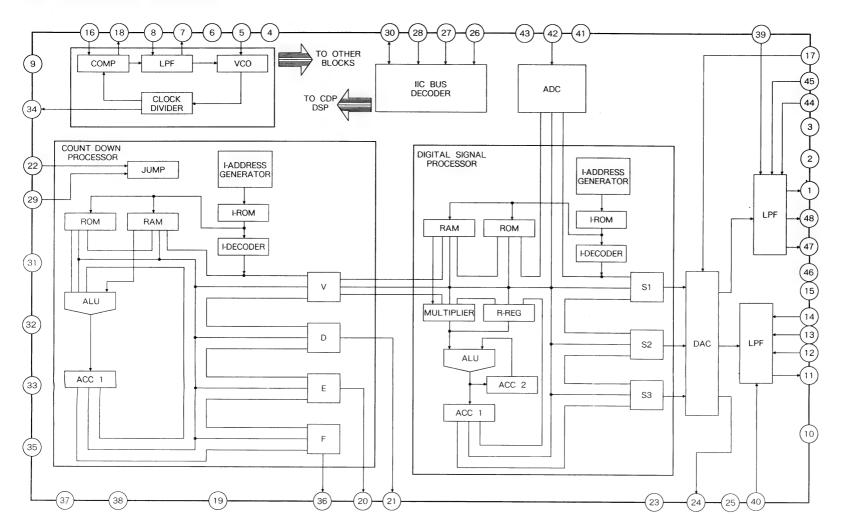


(18)

տ խտ խտ 3.3 Vp-p (H)8.9 Vp-p(H)

A BOARD IC304 CXA1587S

M2 BOARD IC561 CXD2018Q



1 | 20 (19) (18) 17 (16) (15) 14 13 TO A BOARD CN0113 1 10 9 8 7 6 (5) 4 3 2

Α

В

С

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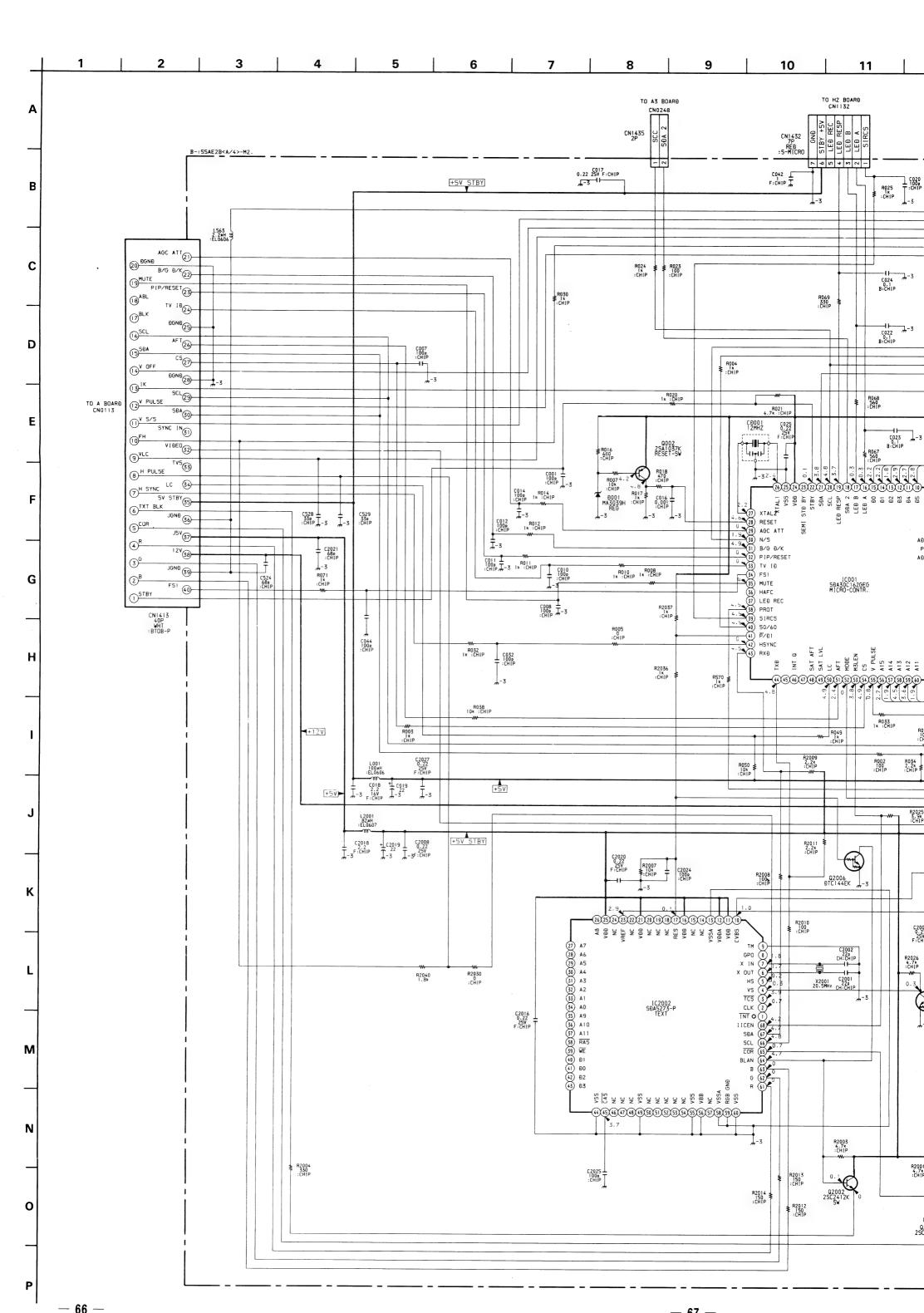
J

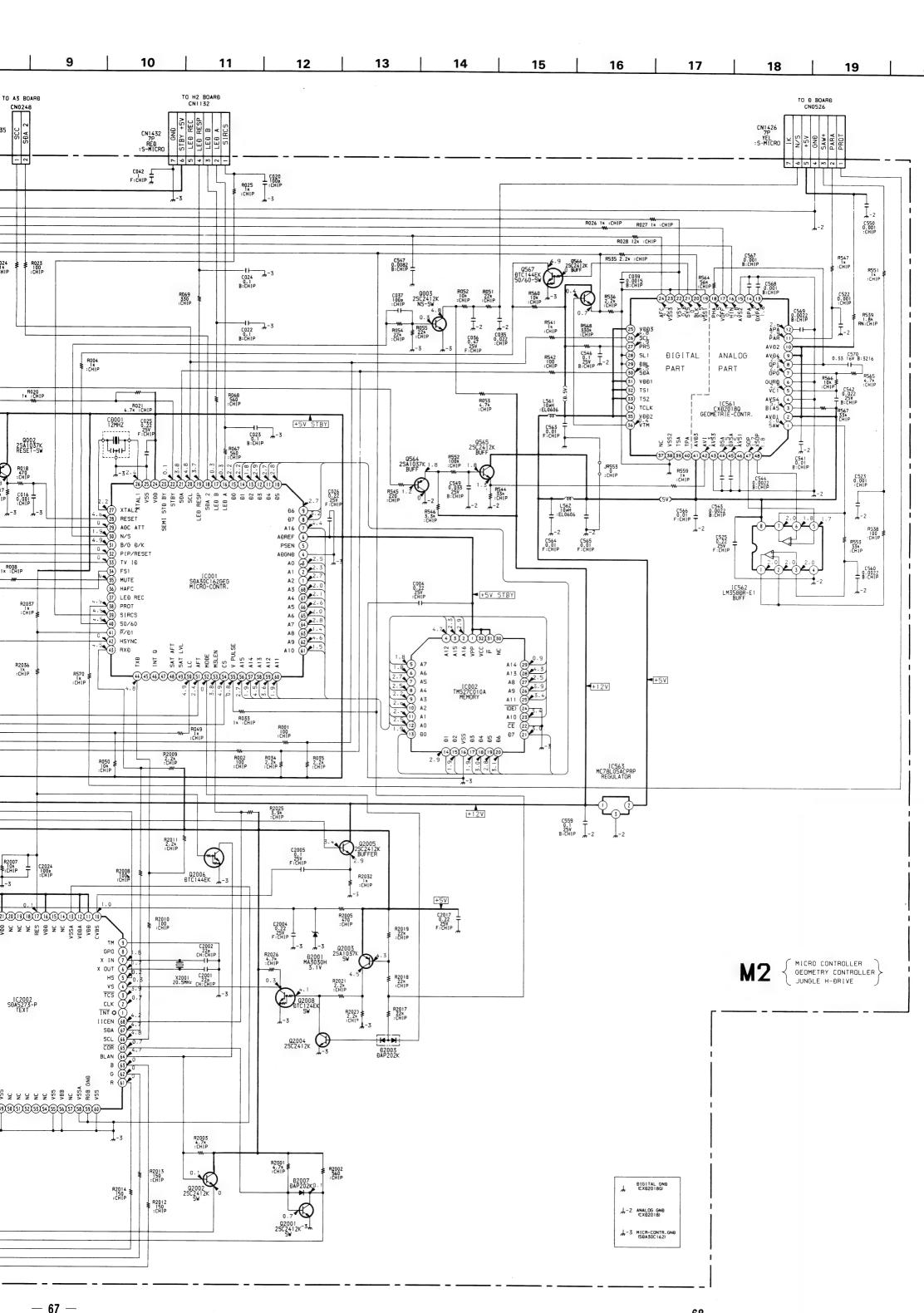
K

L

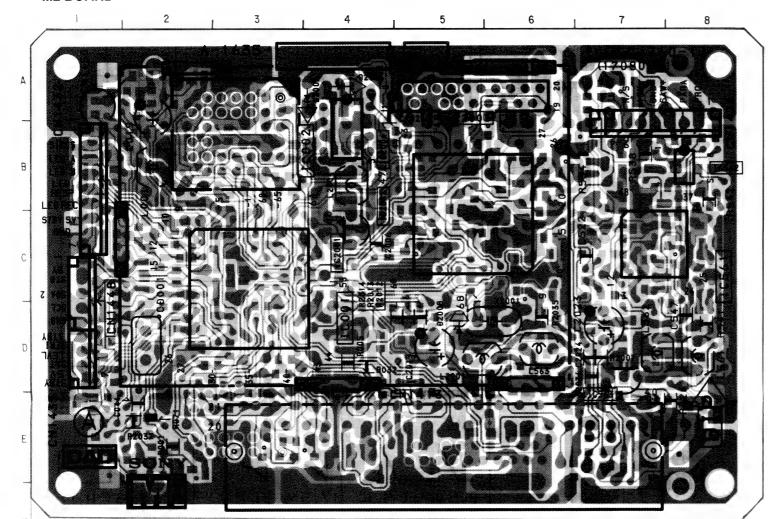
М

P

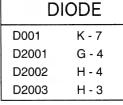




- M2 BOARD -



IC					
IC001	C - 4				
IC002	B - 3, H - 7				
IC561	C - 8				
IC562	B - 8				
IC563	D - 7, J - 3				
IC2001	C - 4, I - 5				
IC2002	C- 5				
IC2003	B - 5, G - 3				
IC2004	B - 4, H - 5				
TRAN	ISISTOR				
TRAN	ISISTOR K-7				
Q002	K - 7				
Q002 Q003	K - 7				
Q002 Q003 Q564	K - 7 I - 6 I - 2				
Q002 Q003 Q564 Q565	K - 7 I - 6 I - 2 I - 1				
Q002 Q003 Q564 Q565 Q566	K - 7 I - 6 I - 2 I - 1 G - 2				
Q002 Q003 Q564 Q565 Q566 Q567	K - 7 I - 6 I - 2 I - 1 G - 2 H - 1				



J - 3

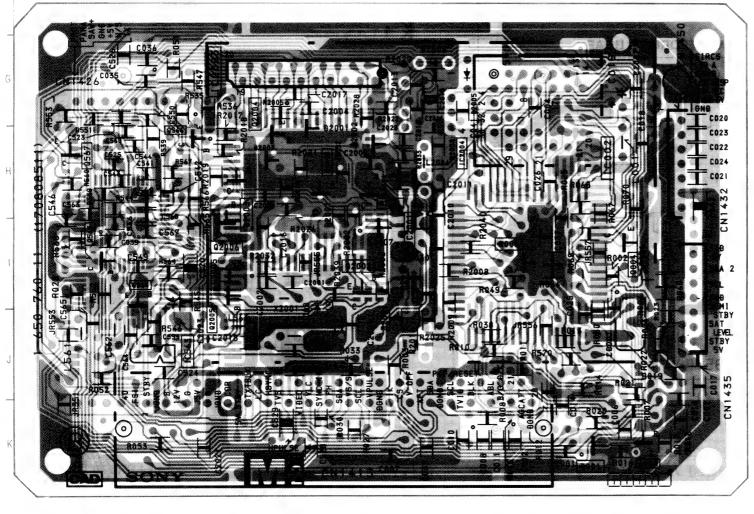
1-3

H - 4

Q2005

Q2006

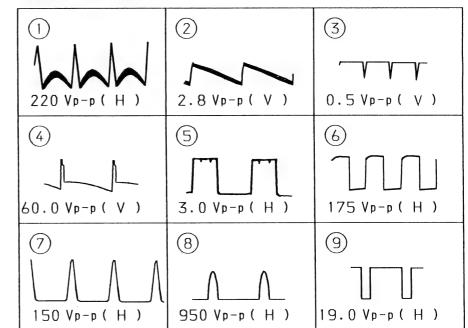
Q2008



Note:

- Pattern from the side which enables seeing.
- Pattern of the rear side.

WAVEFORMS D BOARD



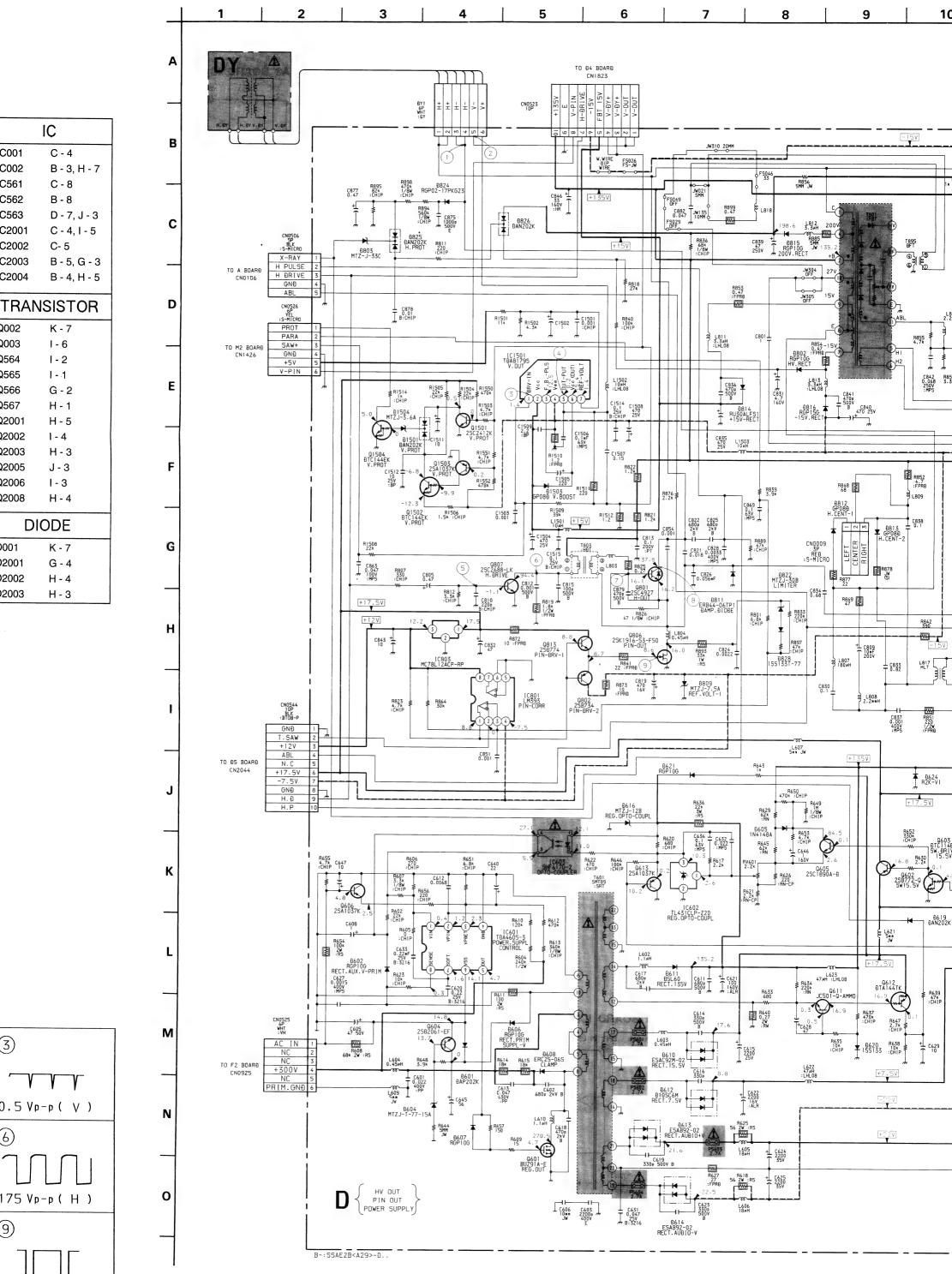
G

Н

M

Ν

0



175 Vp-p (H) 9.0 Vp-p(H)

C2003

TRANSISTOR

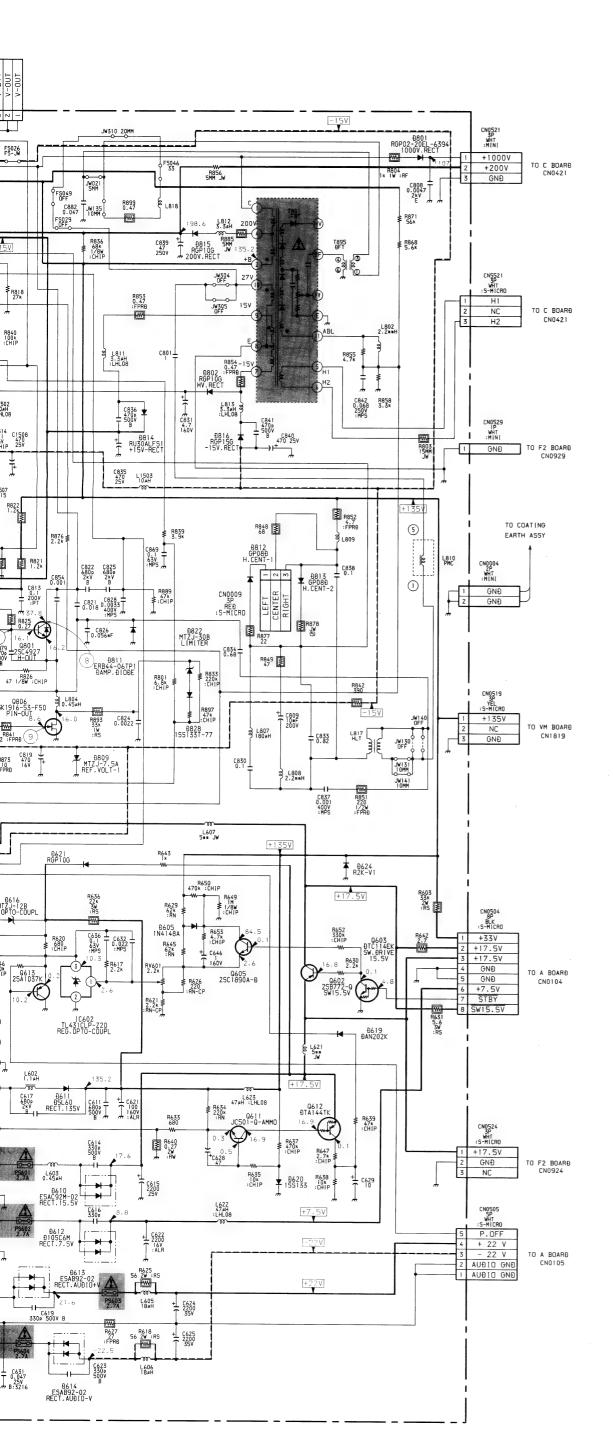
2001 2002

2003

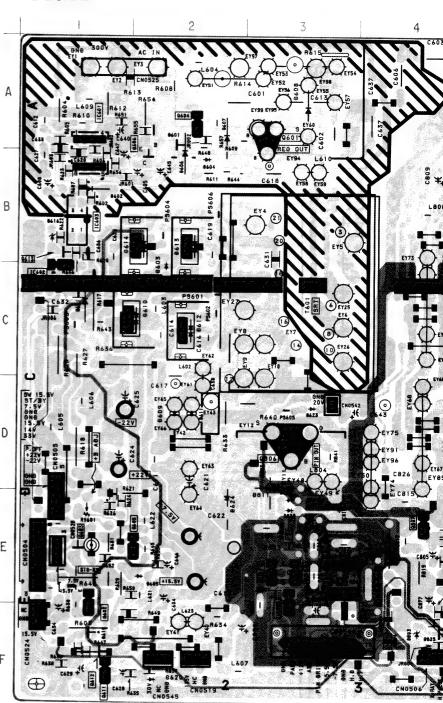
C2004

6

6 10 9 11 12



- D BOARD -

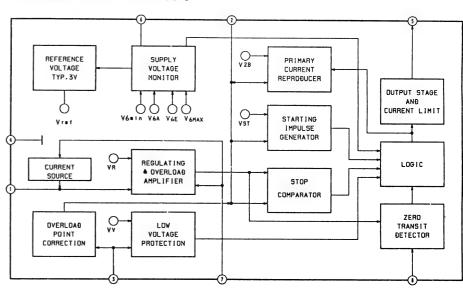




NOTE:

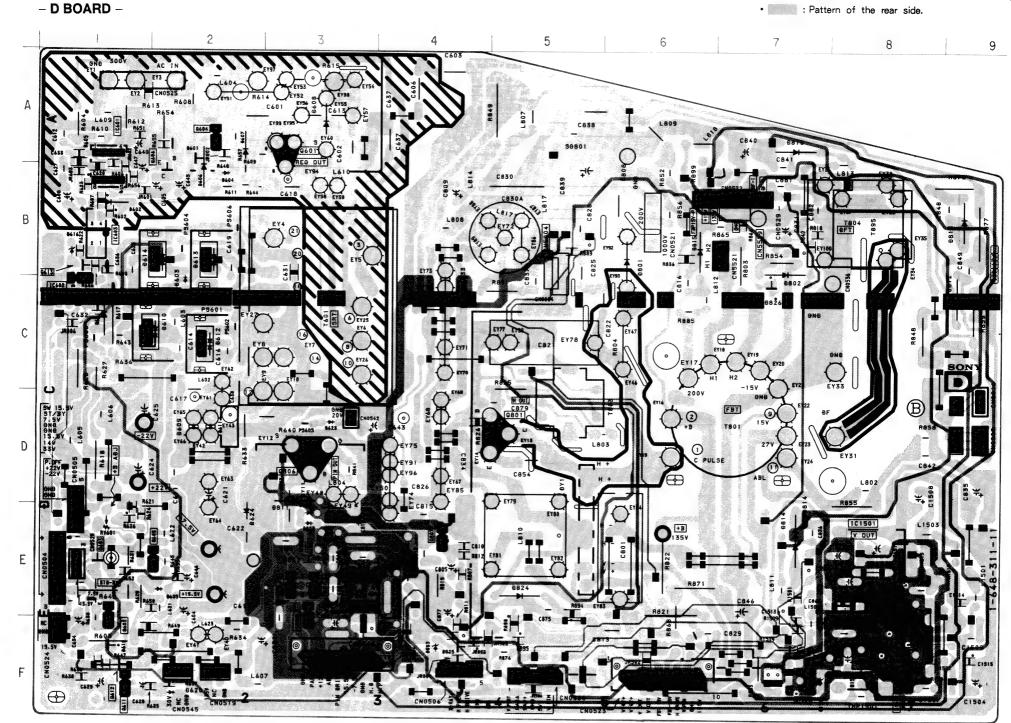
The circuit indicated as left contains high voltage of o 600 Vp-p. Care must be paid to prevent an electric shock inspection or repairing.

D BOARD IC601 TDA4605-3



Note:

- : Pattern from the side which enables seeing.
- Pattern of the rear side.

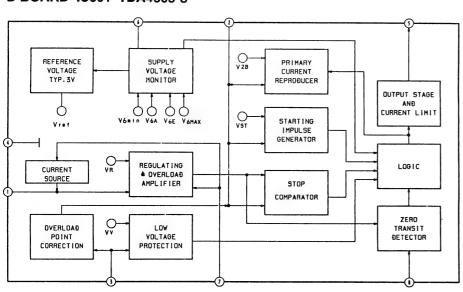




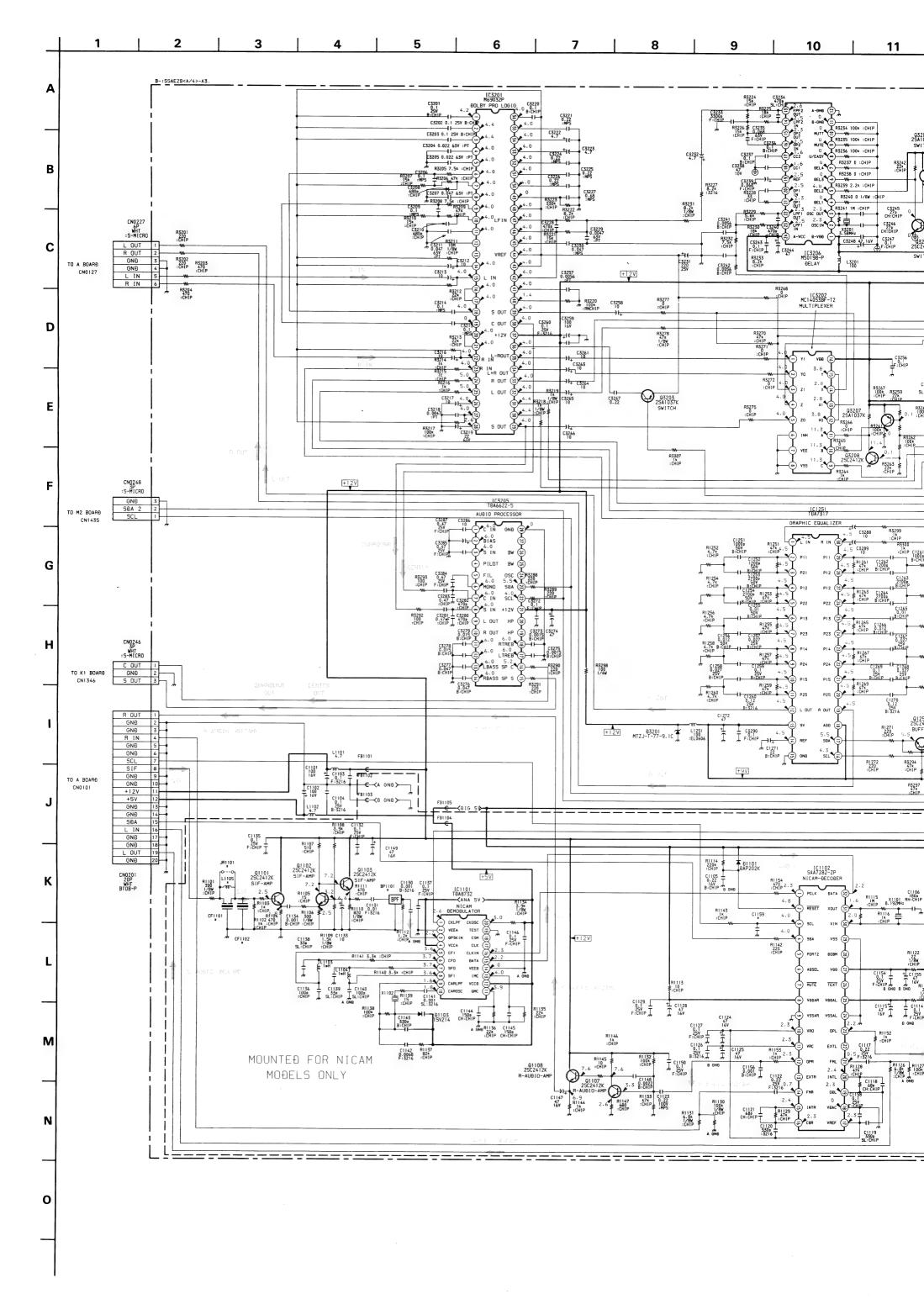
NOTE:

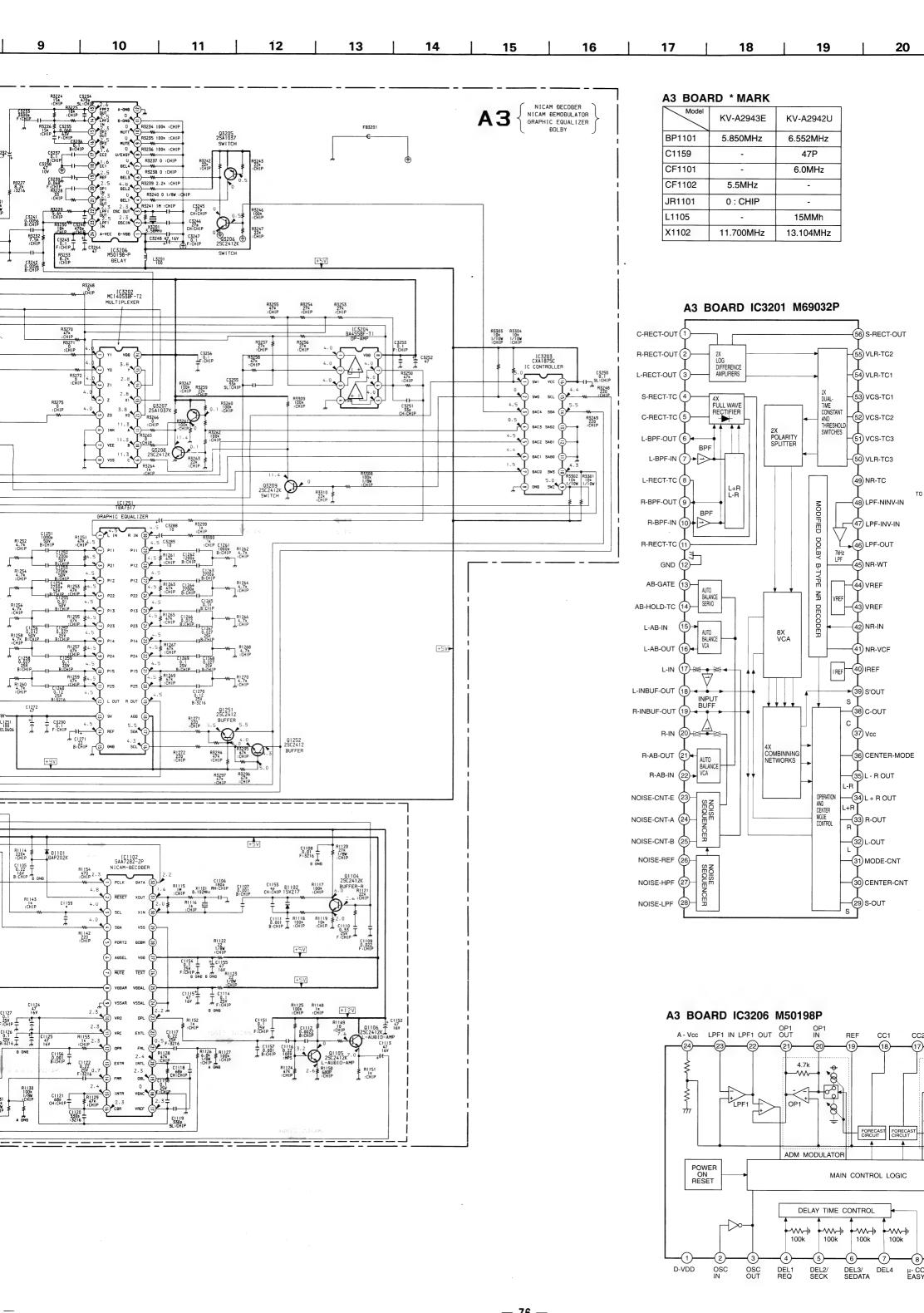
The circuit indicated as left contains high voltage of over $600\ \text{Vp-p.}$ Care must be paid to prevent an electric shock in inspection or repairing.

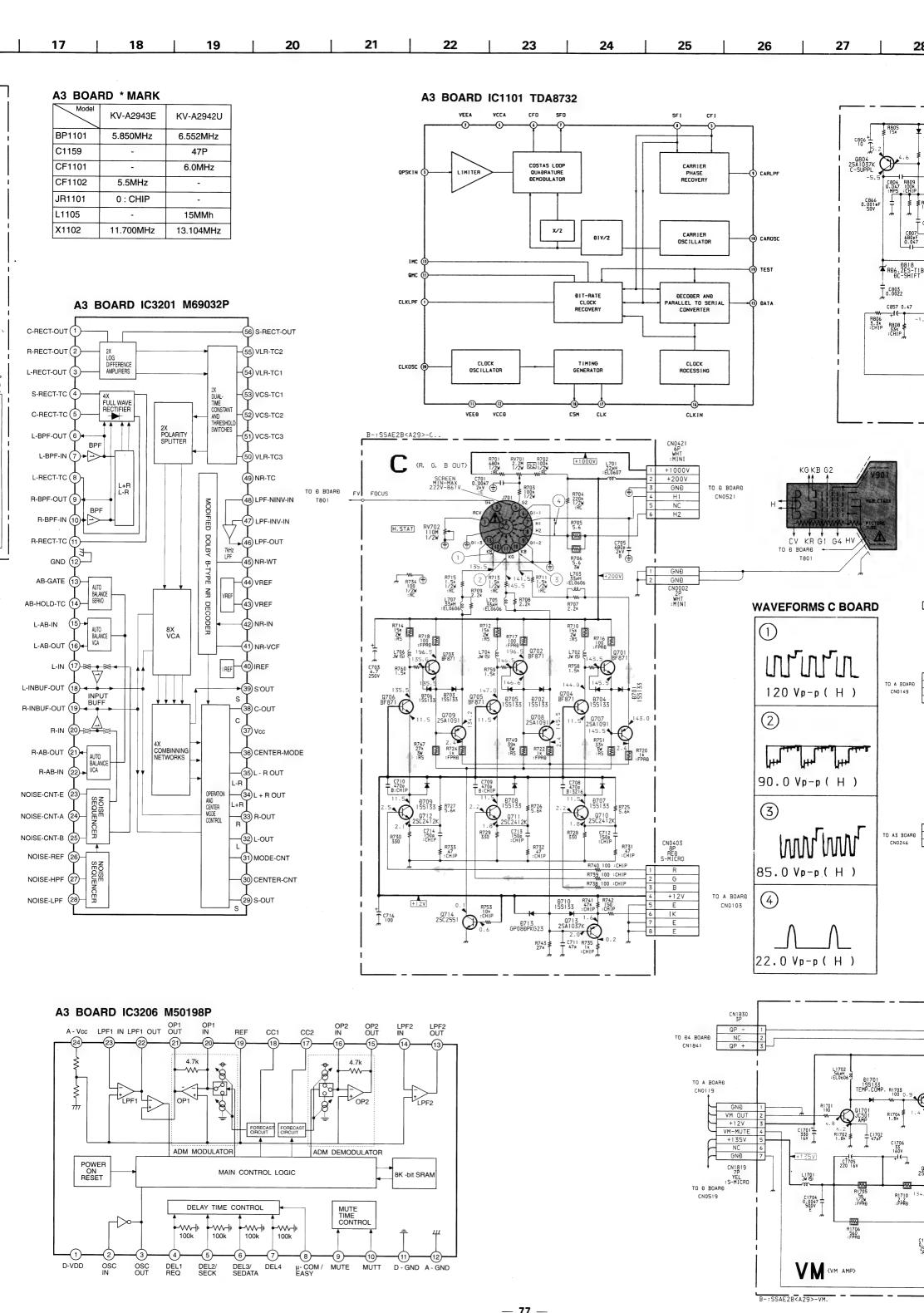
D BOARD IC601 TDA4605-3

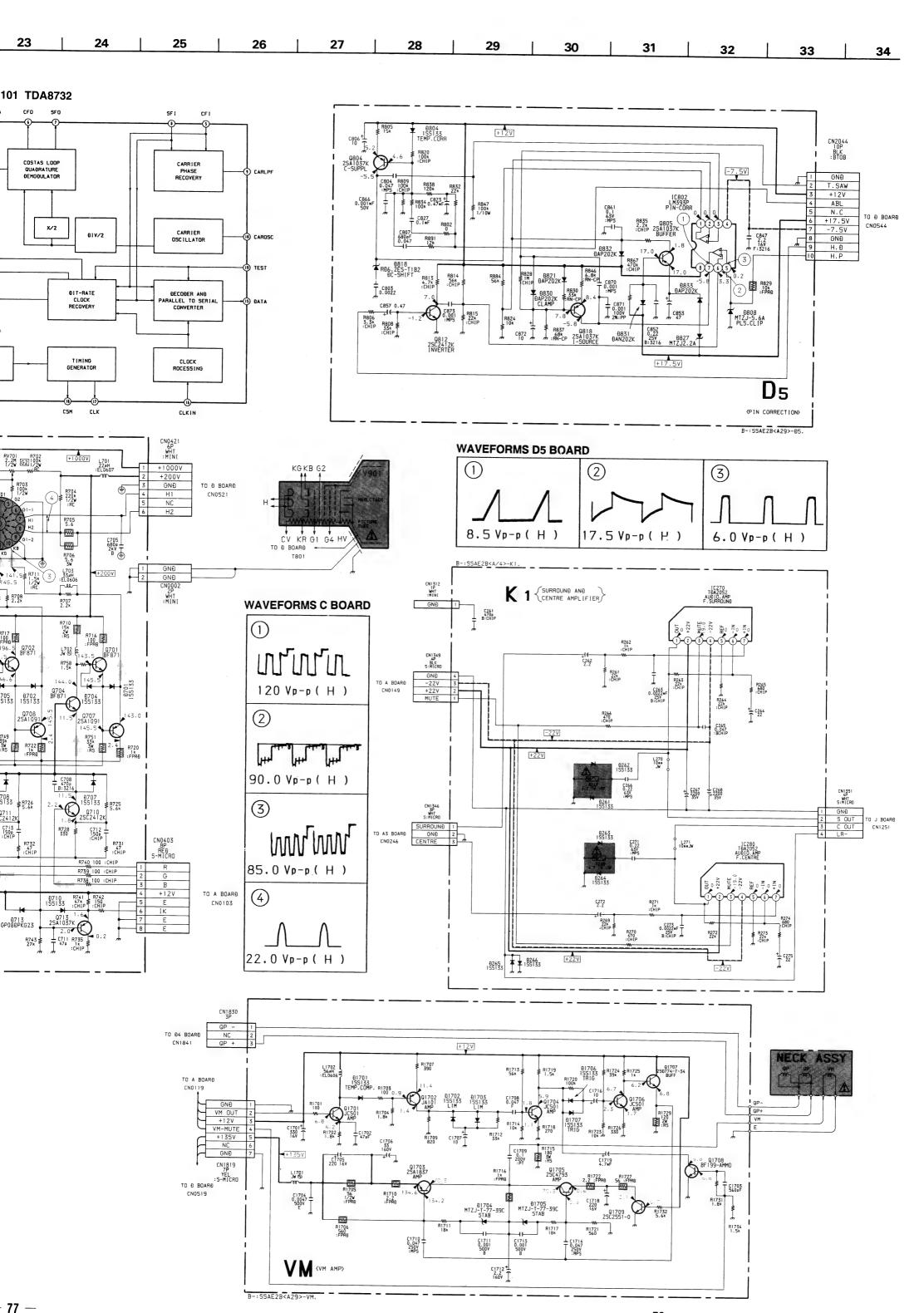


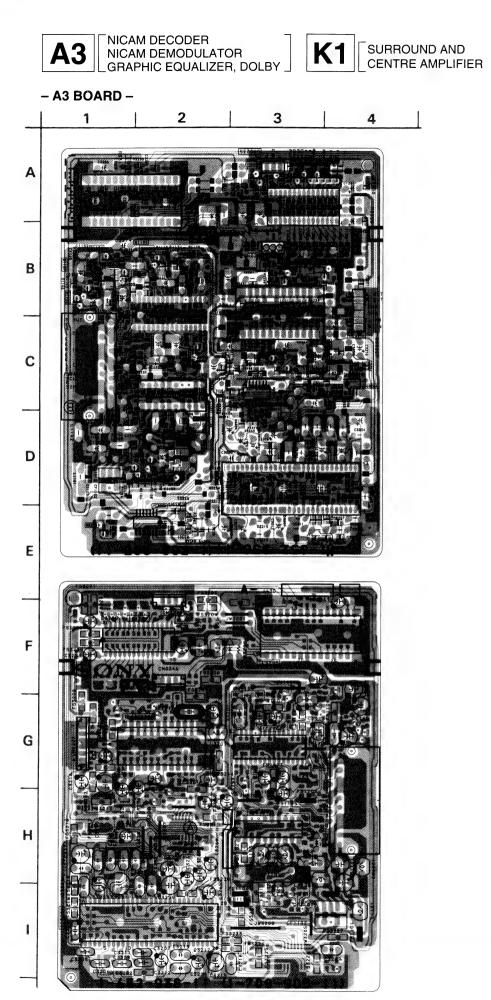
IC601 IC602 IC603 IC801 IC803 IC1501	A-1 C-1 B-1 E-3 F-3 E-8 SISTOR A-3 F-1 E-1 A-2 E-2 B-2 F-1 F-1 B-1 D-5 E-3 D-3 E-4 E-3	D607 D608 D610 D611 D612 D613 D614 D616 D619 D620 D621 D624 D801 D802 D803 D809 D811 D812 D813 D814 D815 D816 D822 D824	A - 2 A - 3 C - 2 B - 2 B - 1 F - 2 B - 7 E - 8 B - 7 F - 3 C - 9 B - 7
Q605 Q606 Q611 Q612 Q613 Q801 Q802 Q806 Q807 Q813 Q1501 Q1502 Q1503 Q1504	A - 2 E - 2 B - 2 F - 1 F - 1 B - 1 D - 5 E - 3 D - 3	D803 D809 D811 D812 D813 D814 D815 D816 D822	F-4 E-3 D-3 C-9 B-9 E-7 B-6 A-7
D601 D602	A – 2 B – 1	VARIABLE RESISTOR	
D604 D605 D606	B – 2 E – 2 B – 2	RV601	E – 1

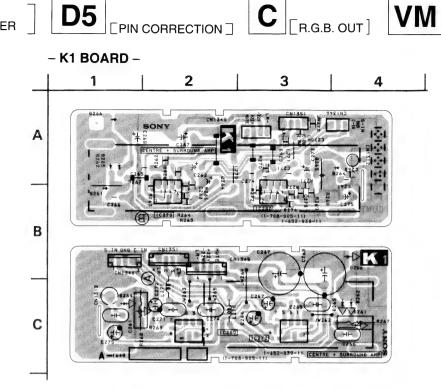




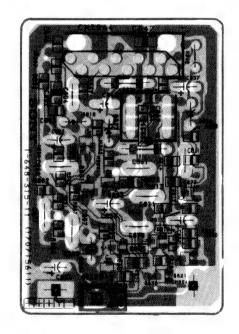








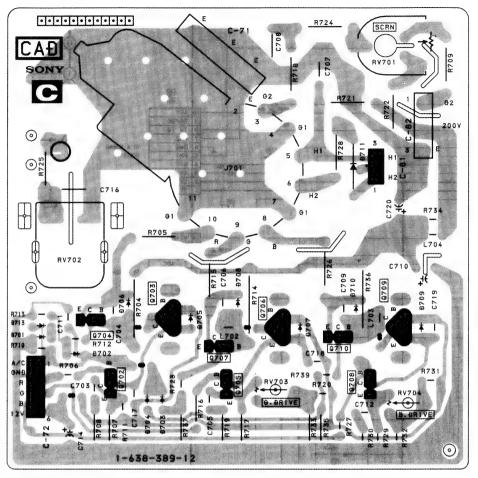
- D5 BOARD -



Note:

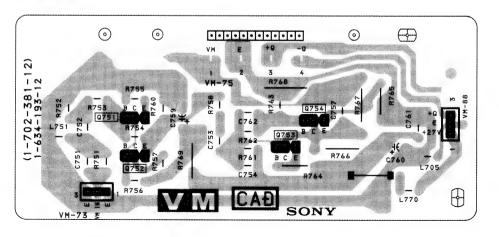
- Pattern from the side which enables seeing.
- : Pattern of the rear side.

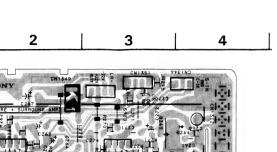
- C BOARD -

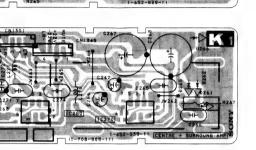


RV1853 2.2* R1862 1.8* :CHIP

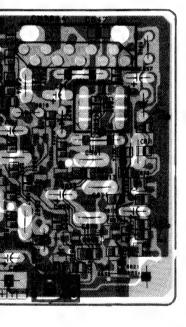








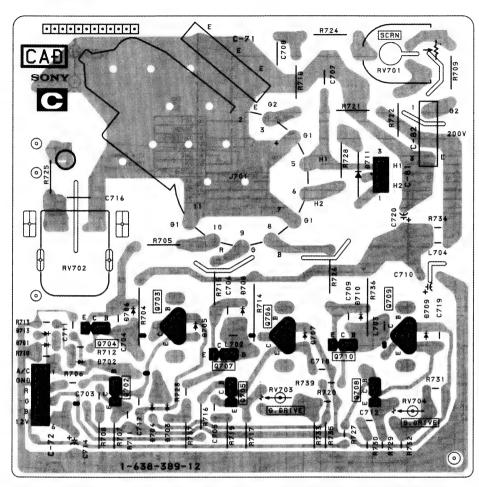
BOARD -



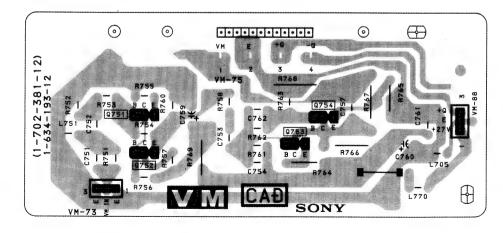
- : Pattern from the side which enables seein
- : Pattern of the rear sid

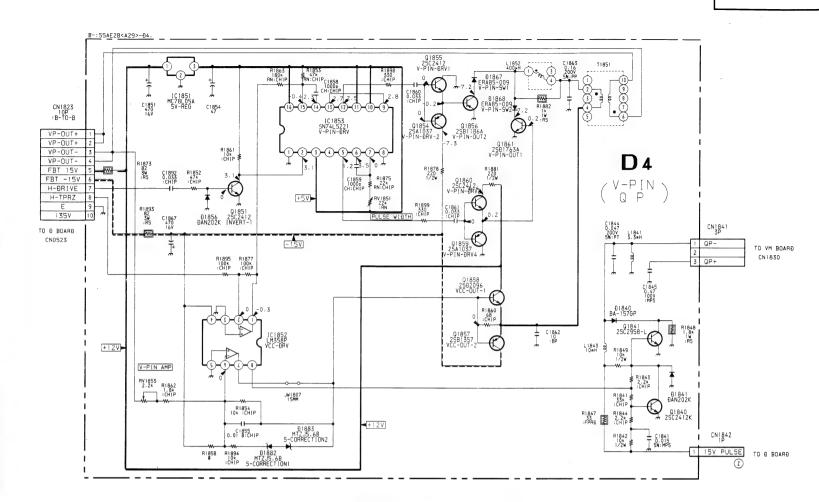


- C BOARD -

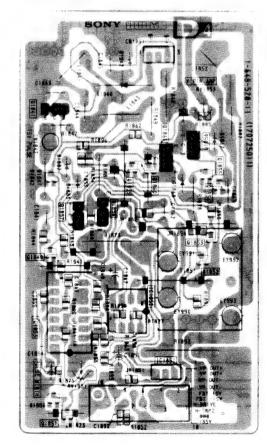


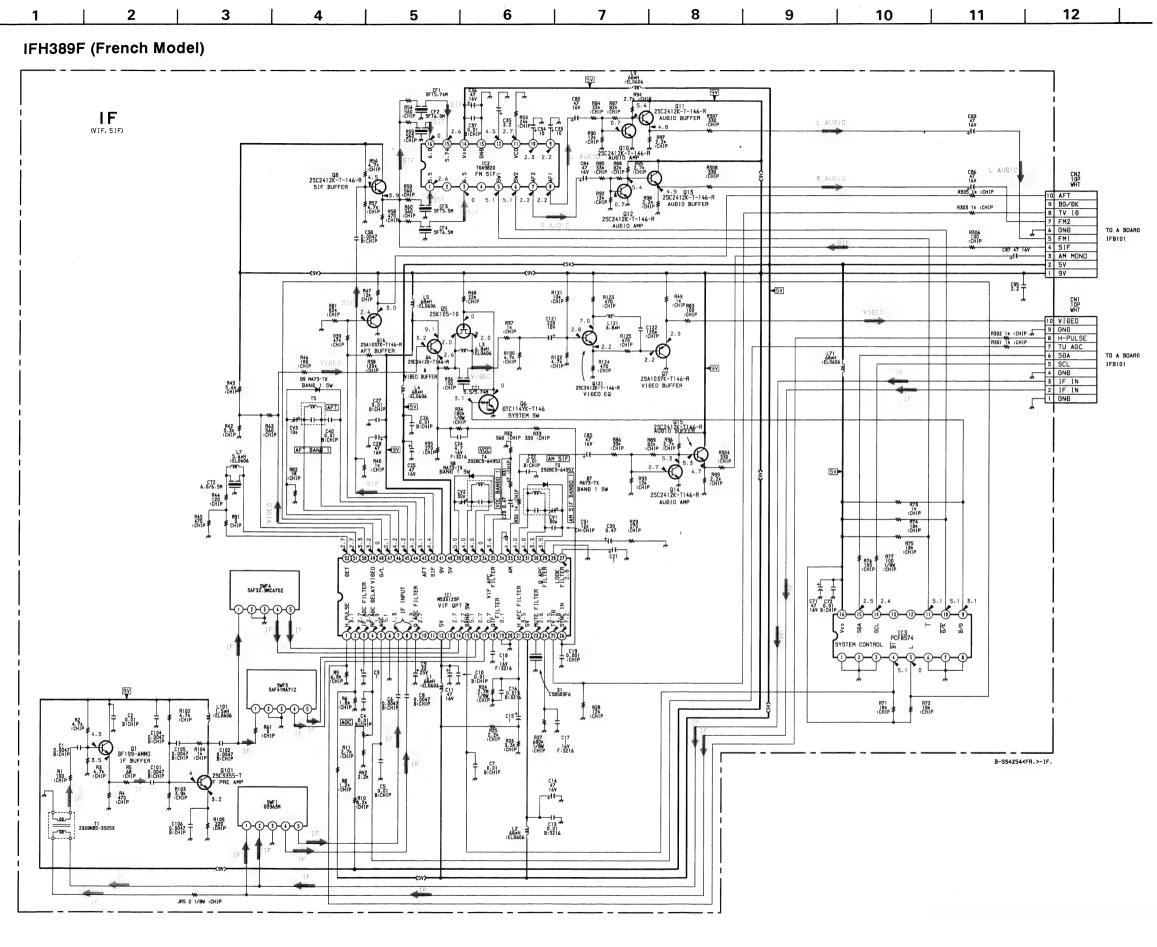
- VM BOARD -



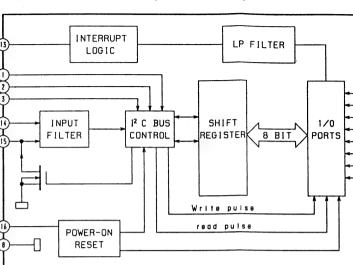


- D4 BOARD -

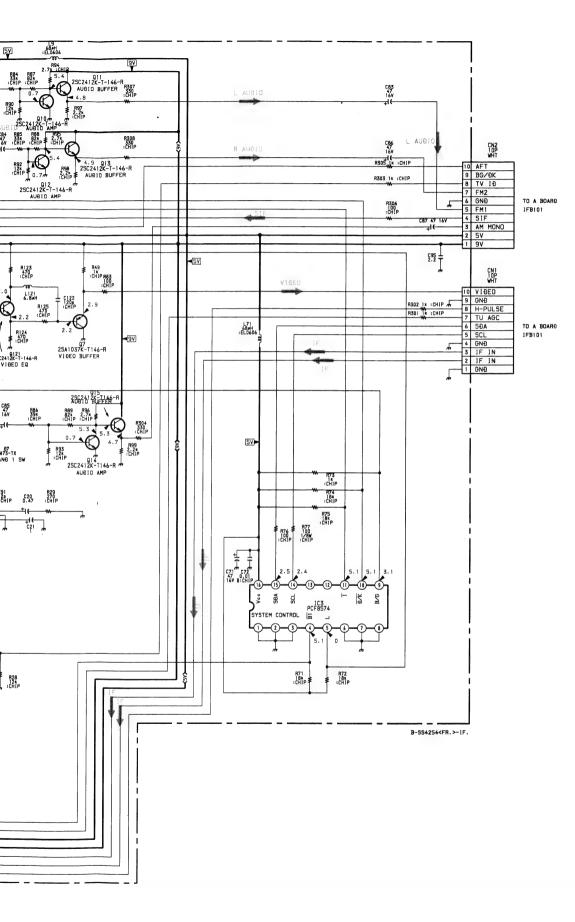




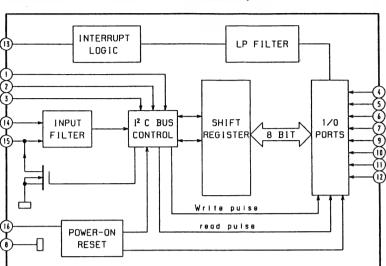
IF BOARD IC3 PC8574 (French Model)





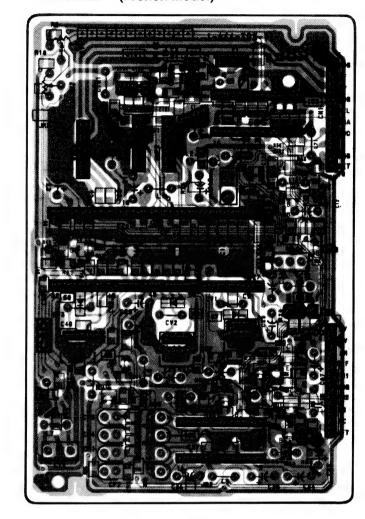


IF BOARD IC3 PC8574 (French Model)



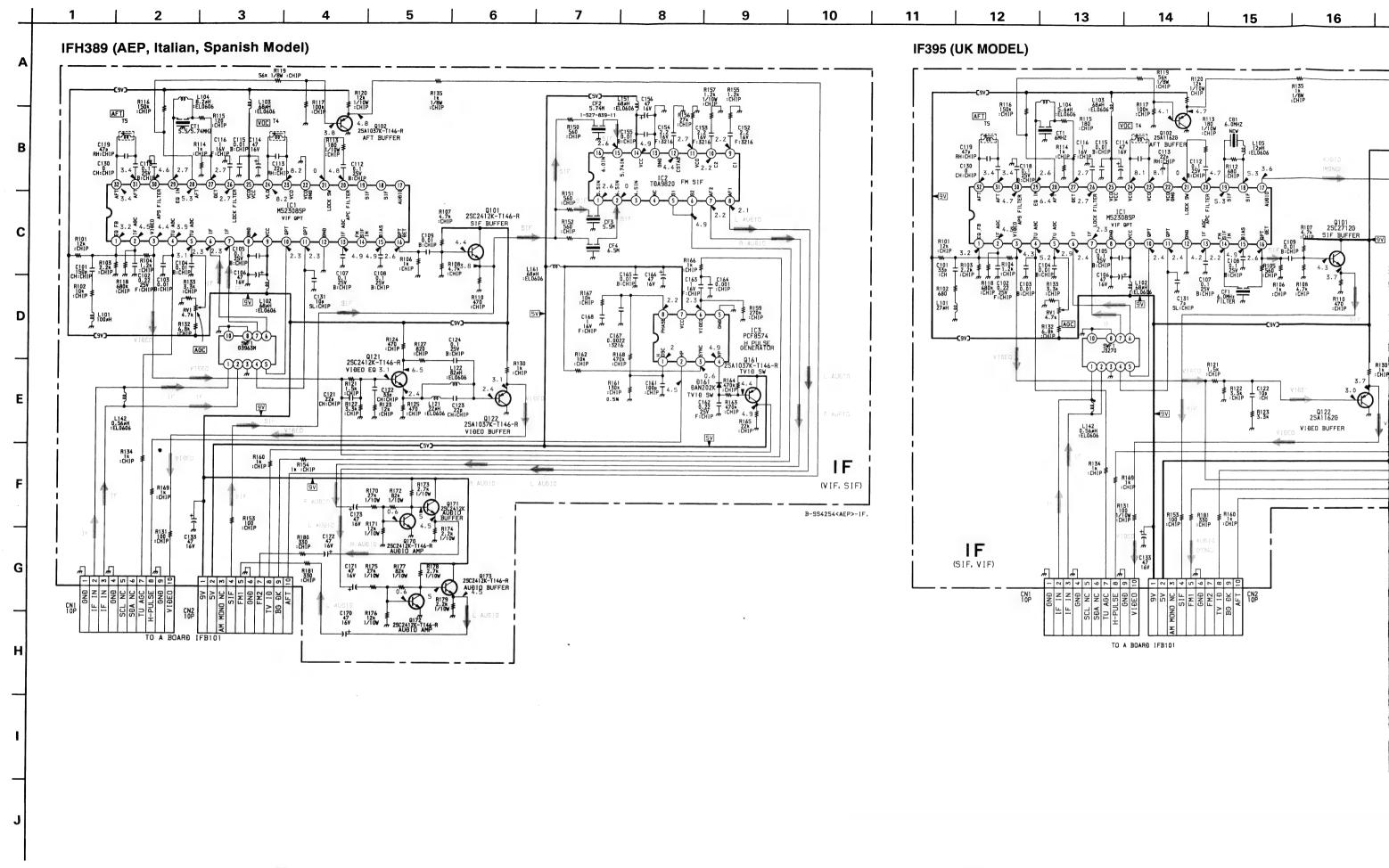


- IF BOARD - (French Model)

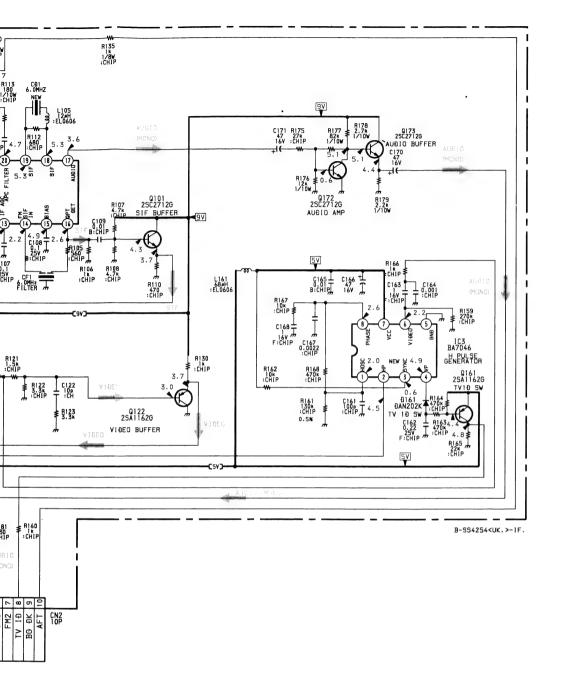


Note :

- Pattern from the side which enables seeing.
- : Pattern of the rear side.

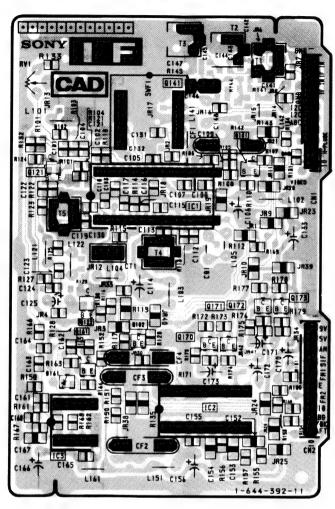




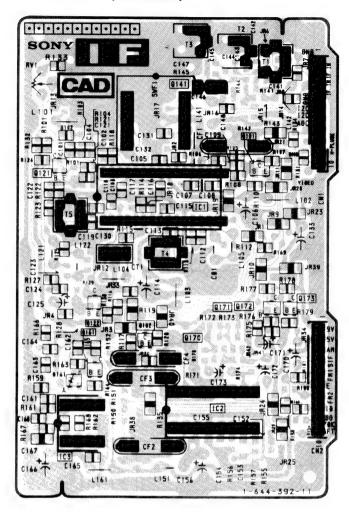




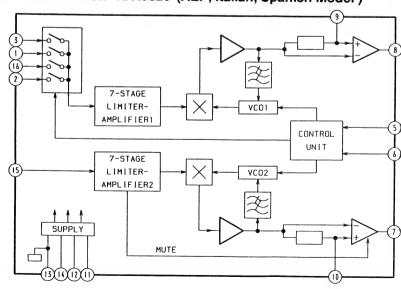
- IF BOARD - (AEP, Italian, Spanish Model)



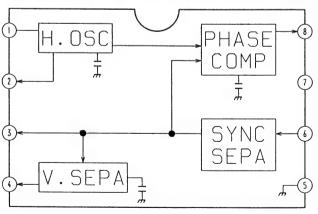
- IF BOARD - (UK Model)

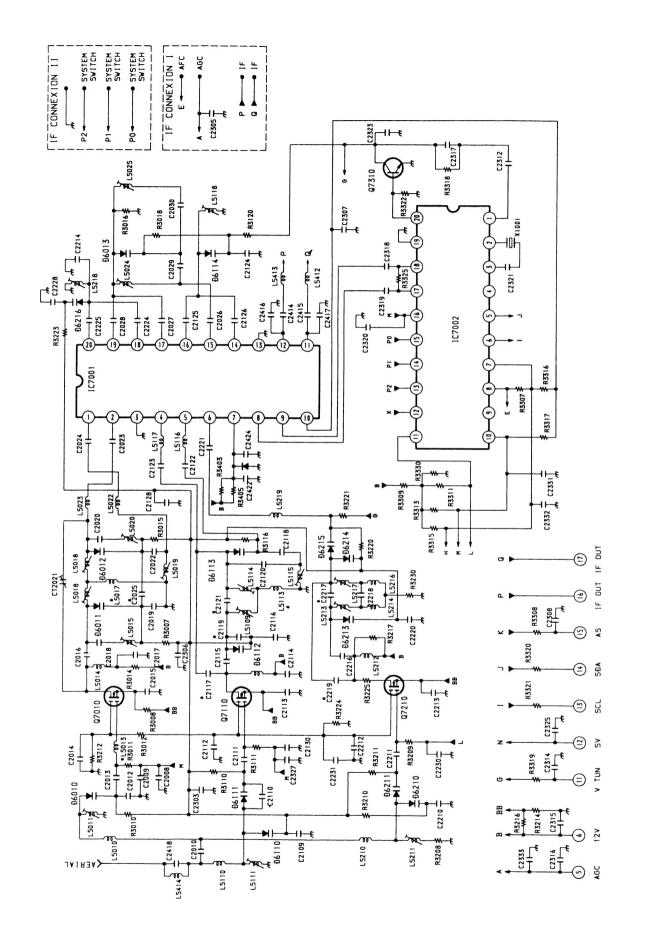


IF BOARD IC2 TDA9820 (AEP, Italian, Spanish Model)

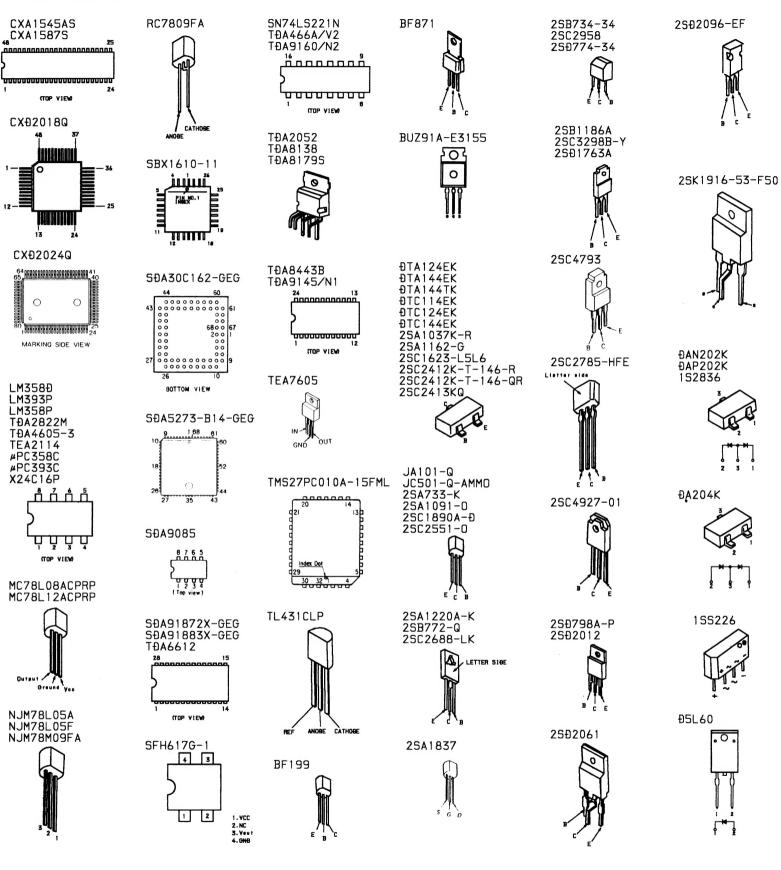


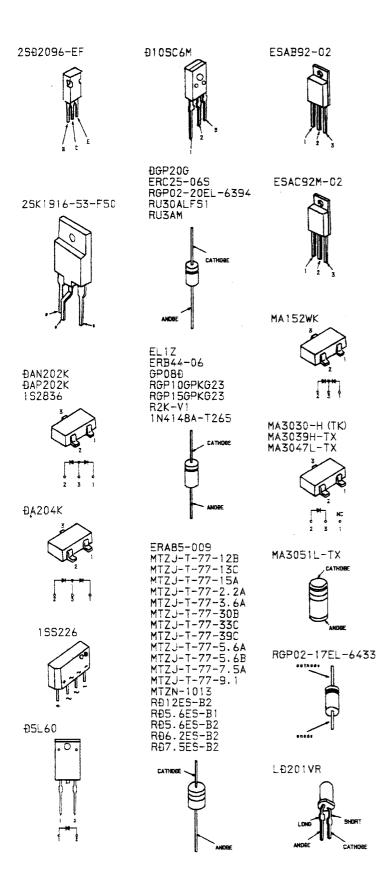
IF BOARD IC3 BA7046 (AEP, Italian, Spanish, UK Model)

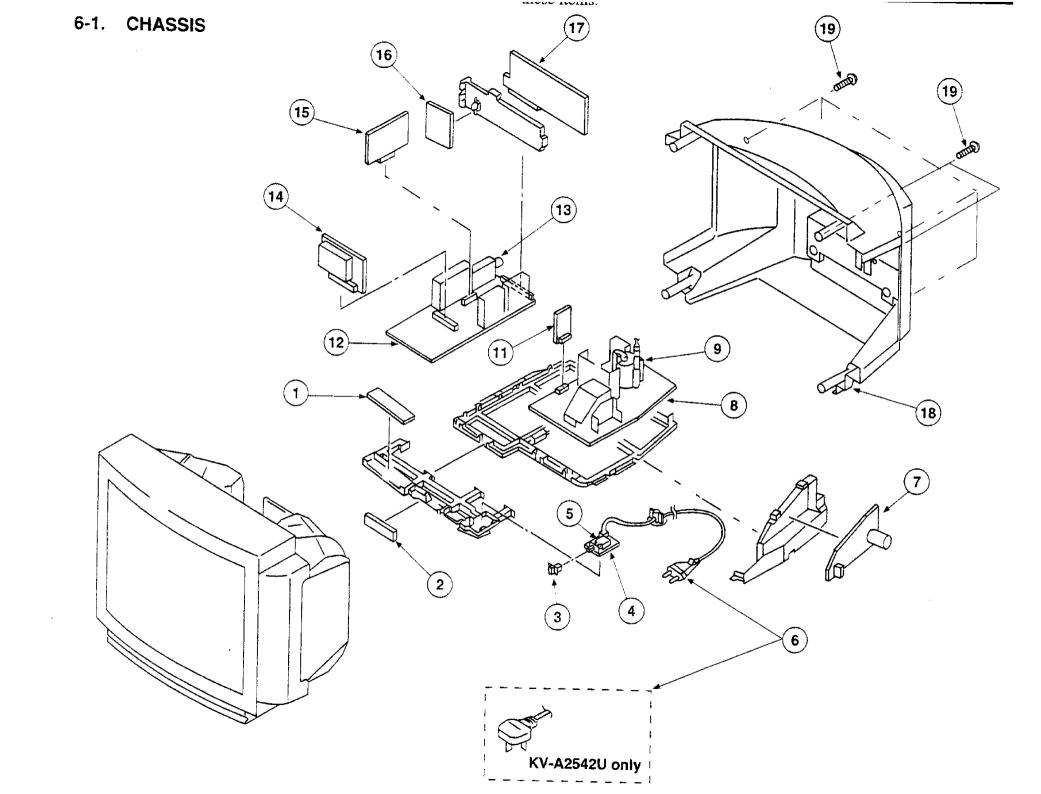




5-5. SEMICONDUCTORS







6-2. PICTURE TUBE

The components identified by shading and marked \triangle are critical for safety.

Replace only with the part number specified.

